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QUEENSLAND AGRICULTURAL JOURNAL

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Event and Comment.

The Current Issue.

An account of the Brisbane Exhibition occupies, quite fitly, much space in this issue. Departmental activities at the Show are well described in text and picture. An interesting report from Mr. Edmund Jarvis on progress made in controlling the grub stage of the grey-back cane-beetle will be appreciated by canegrowers. Mr. Froggatt contributes a useful summary of his observations on the Banana Weevil Borer. In a reprinted article, Mendelism is simply and interestingly explained. Mr. Shelton adds some useful notes on his Show yard observations of stud pig types and breeds. Some notes on studies of fertility of sugar-cane flowers by Mr. Cottrell-Dormer add to our general knowledge, especially as there is a dearth of literature on the subject. Mr. Watson's observations on the causes of low cream tests are timely and will explain to the dairyman many little annoyances. The discovery of a new native host for fruit-fly larvæ is noted by Mr. White. Generally, the September Journal is a very readable number; the regular features contain much useful information and the issue is well illustrated, the Exhibition claiming most of the photographer's interest. Other Exhibition pictures have been reserved for the October number.

Cotton Picking and Pests.

In a Press communication the Minister for Agriculture and Stock (Hon. W. N. Gillies) observes that there appears to have been a certain amount of misunderstanding in respect to the Order which extended the cotton-picking season until the 15th September. It is desirable to point out that this was the last date on which cotton should be picked by growers, and that all cotton plants must be either uprooted or properly ratooned to near the surface of the ground and all stalks and débris burnt by the 30th September at the latest. This matter is especially brought to the attention of growers, for it is a most important one, because this year, on account of the mild winter, hibernating pests such as the Northern Peach Moth and the Pink Boll Worm are already beginning to emerge, and it is therefore essential in the best interests of the industry that as many as possible of these pests should be destroyed whilst they are still dormant in the bushes. If the destruction of cotton shrubs is further delayed there is a possibility that swarms of moths of these pests will cause damage early in the season.

The Melbourne Cotton Conferences.

Interviewed on his return from the Melbourne Cotton Conferences, the Minister for Agriculture (Hon. W. N. Gillies) stated that he was well satisfied with the work done at the two conferences. Among the more important matters dealt with were the consideration of the report of the Advisory Committee, which was set up at the Sydney Conference in May last, and the adoption of a number of its recommendations. The Ministerial Committee, said Mr. Gillies, decided to give this Advisory Committee permanent status, and it will continue to meet biennially. Among the recommendations considered was the question of the necessity for co-ordination in the production of similar types of cotton throughout Australia, and to this end the distribution of good seed through the several Departments of Agriculture; the establishment of cotton experimental stations in centres in the cotton-growing belt, with the recommendation that the fullest use be made of the present departmental officers. Estimates were submitted showing the probable total cost of these stations. After revision, the scheme generally was approved, and for this year a recommendation has been submitted to the Federal Government to subsidise the Melton Experiment Station, in the Callide Valley, to the extent of £1,300. The Commonwealth Government is also being asked to pay the whole of the cost and the necessary salary to secure the services of a competent mycologist for the whole of Australia, assuming that the Empire Cotton Corporation decides against giving the assistance asked of it in this and other directions. The questions of coping with pests and quarantine matters were also discussed.

Standard Grades.

Another very important matter, approved by both the Ministerial and General Conferences, was the adoption of the recommendation made by the Director of Cotton Culture (Mr. Evans) and the Queensland Cotton Specialist (Mr. Wells) of a schedule of standard grades and prices to be guaranteed for the coming season. Commenting on this decision of the conference, Mr. Gillies said that he would have no hesitation in recommending the Queensland Government to agree to the guarantee for the 1924-25 harvest on the lines of the schedule recommended, because the price and conditions as to grade were such as would encourage the growers, with the minimum of risk to the taxpayers. The idea in giving a premium for grade instead of staple—the latter, it should be noted, is not a condition of the guarantee—is because length of staple is largely a matter of the variety of seed and the season, whereas grade is largely a matter of cleanliness in picking, keeping the good qualities separate from the inferior, and careful handling generally in order to secure the premium offered.

Co-operative Control.

The other important matter, and, in Mr. Gillies's opinion, the most important matter dealt with, following on his statement that the Queensland Government had no intention of renewing the ginning agreement after its expiry in two years' time, was the offer made by the directors of the British-Australian Cotton Association to open negotiations at once with the growers' representatives with a view to the ultimate co-operative control of the ginning and marketing of cotton by the farmers themselves. Mr. Gillies did not suggest that a matter of this kind can be settled by a conference, no matter how representative it may be or what unanimity might prevail at such a conference, but he thought that the spirit displayed by the representatives of the Association, and the speeches made by Sir Owen Cox and Mr. Baillieu on behalf of that organisation, disclosed an honest wish to bring about a more satisfactory arrangement between those who are ginning and selling the cotton and those who are growing the raw material. With the authority of Cabinet, Mr. Gillies made it quite clear that the Government had no intention of renewing the present agreement unless the farmers, by a large majority, requested renewal. He also made it quite clear that the Queensland Government has no intention of entering into the business of cotton ginning.

Ratoon Cotton.

On the question of ratoon cotton, Mr. Gillies said that this subject was discussed at both conferences, and after he explained the recent decision of the Queensland Government, setting out the conditions under which Queensland is allowing the growth of ratoon, the chairman, Senator Pearce, expressed the opinion that, as his Government was not prepared to include ratoon in any guarantee, it was really a matter for each State to decide the conditions under which the growth of ratoon cotton would be permitted. There was a very general feeling at the conference that Australia should make a special effort to produce the best, and nothing should be permitted that would injure the good name of Australian cotton on the world's market. It was agreed that the grading approved of by the conference should be applied to ratoon cotton as well as annual, but there would be no guarantee as to price. Discussing the matter privately with the Prime Minister (Right Hon. S. M. Bruce), Mr. Gillies said that time alone will tell whether the Queensland Government was right in its decision a year ago to impose an embargo, or the decision a few weeks ago, after twelve months' experience, to relax the restrictions on ratoon cotton.

Bureau of Sugar Experiment Stations.

FIELD REPORTS.

The Northern Field Assistant, Mr. E. H. Osborn, reports under date, 19th August, 1924:—

LOWER BURDEKIN.

Inkerman.

The adjacent township to the mill (Home Hill) has made wonderful strides during the past few years and may now be termed a very important sugar centre. How the township has grown may be seen from local school figures, which show that the average daily attendance for the year at the local school for 1913 was 32.8 pupils. In 1923 it had grown to 230.8, with a further steady increase for the present year.

For the week ending 19th July a total of 5,820 tons had been treated at the mill, and harvesting generally seemed very successful. Next year's prospects are distinctly good, for the strike of young cane was excellent over a large acreage. Cultivation methods have improved in the area, and good results are encouraging the growers to try for the best returns possible.

Among farms visited was that of Mr. F. G. Woods. Here was seen some excellent E.K.28, showing good length of cane and fair stools. Some very fine Q.855 was here too, but was inclined to be pithy. Further up the river at Mr. S. W. Gibson's, some twelve months' old plant Q.813 was cutting at the rate of 50 tons per acre, but the density was low, probably on account of the richness of the soil. In 1922 this cane gave a yield of about 60 tons per acre, and carried a very high density, while first ratoons returned in the vicinity of 40 tons per acre. Upon the same farm there is also a magnificent crop of N.G.24B (Green Goru) first ratoons, that should cut 35 tons per acre. Although this land is of good type it has been kept up to standard by the use of lime and green manure, in which Mr. Gibson is a firm believer.

All along the river frontage may be seen heavy cane crops, but around the Frederick's field area they are upon the light side. This is to be accounted for by their not getting the full benefit of irrigation earlier. Generally, this particular part of the Burdekin shows great promise from a sugar-producing point of view; and the growers who have hung on for so long under adverse conditions certainly deserve every benefit that they may get.

In last month's Ayr notes I omitted to mention that some very fine varieties of cane were seen at Mr. B. Crees, Kalamia Farm. They were E.K.28, H.146, H.Q.458, and H.109. The two former canes looked very well, but H.146 was inclined to be pithy H.Q.458 and H.109 were very good and healthy looking. Mr. Crees has some 7 acres of E.K.28 planted out, and has had a very good strike. At Cameron and Irving's some splendid N.G.24A and N.G.24 (Goru) second ratoons looked a picture, whilst some eleven months' old plant Badila shows remarkable growth, probably averaging a 45-ton crop.

Invicta (Giru).

This area was visited during the last week in July, the conditions then being rather better than upon previous occasions. The increased number of irrigation plants driven by tractors is most noticeable. For instance, up to last year only four plants were in operation; at present there are thirty-three. Much old land has been planted, and there is also a considerable acreage of new for next year. The strike generally is very good.

Among those noticed particularly were areas of Messrs. J. Humprey's 20 acres of Badila, R. Walton's 20 acres of H.Q.426, and Poyser and McCrae's 7 acres of mixed cane. All these blocks look very healthy and free from weeds. Messrs. Humprey and Poyser and McCrae have each planted out a few lines of E.K.28, to test local conditions.

Diseases.—Two diseases most in evidence upon the Burdekin are Top Rot and Leaf Stripe. The former was noticed far more upon the Home Hill or Inkerman side of the river than upon the Ayr side, and is most prevalent in Badila. As for Leaf Stripe, it is far more noticeable in B.208 than any other cane, although occasionally Goru seems to suffer, especially in ratoons and when growing in close proximity to B.208. In one farm the first ratoons of B.208 were very bad, but

three rows of Q.908 separating this cane from N.G.24 (Goru) were quite free from the disease, whilst several stools of the latter (also first ratoons) were showing strong signs of the disease. If the practice of always ploughing out plant crops showing signs of this disease were carried out, it would greatly minimise the risk of infection. It must be remembered that the B.208 cane is not now grown upon the Herbert River through its great susceptibility to disease.

Pests.

Grubs.—Very slight damage has been caused by this pest this year, practically the only places affected being in the vicinity of Plantation Creek.

Moth Borers and White Ants.—Widely distributed damage was observed throughout the area. White ants are still causing some trouble, principally in parts of the Kalamia area, and an officer from this Department was carrying out some experiments in connection with the pest.

General.—The Lower Burdekin Pastoral and Agricultural Show was held early in the month, and was a pronounced success. Cane exhibits were good, but neither in quality nor quantity were they up to the high standard that generally characterises exhibits in the local show. No cane exhibits were received from either Inkerman or Invicta, where some excellent exhibits could have been obtained. It is hoped that next year's cane exhibit will be what it should be—one of the very best in North Queensland.

Innisfail.

This rich canegrowing area was visited early in August, when all the local mills were in operation. In consequence, the town of Innisfail was very busy. This centre is growing rapidly. With the advent of the North Coast Line this area should be one of the most widely known cane areas in North Queensland, for the true tropical conditions prevail here.

Goondi.

This mill was rapidly making a gap in the record crop that the manager expects to harvest. Up to date the cane was keeping well up to the estimate, but the supply being slightly upon the smaller side prevented the mill showing really what can be done under best conditions. Arrowing was fairly prevalent, more especially in 7R.428 (Pompey), of which a fairly large area is now under and going under. This cane is certainly good for moderate to poor land, giving a heavy tonnage per acre for such lands. Very little early planting for 1925 has been carried out, due, of course, to the continuous wet during early planting time. Several crops of Badila (young plant) were, however, seen upon the volcanic soil, one of the best being a 30-acre paddock upon Mr. R. Graham's Mindoo Farm. This looks wonderfully healthy and should make a heavy crop. Another good block was at Mr. McRobbie's place upon the South Johnstone road.

The Director of the Bureau of Sugar Experiment Stations (Mr. H. T. Easterby) has received a report from Mr. W. Cottrell Dormer, under date 19th August, 1924, who is at present investigating pests and diseases in sugar-cane districts:—

Districts surveyed:—South Johnstone, Banyan, Mourilyan, and Goondi. Upwards of seventy-six farms were visited. On the whole these districts were found to be very free from pests and diseases of sugar-cane; that is to say, that though these pests and diseases are fairly well distributed, it was only in a few well-defined localities that they were doing appreciable damage.

DISEASES.

Leaf Scald.

This disease was found present in all the districts visited. It is most prevalent in the South Johnstone and least at Goondi, where it was only noticed in a few stools of Badila close to the mill on the western side. Similarly at Banyan the infection is but slight. At Mourilyan it was found in two widely separated localities—the Plantation Estate and the Moresby. In the South Johnstone district, however, it was found in almost every locality visited, though the disease has nowhere reached epidemic proportions. The localities most affected are the old lands close to the mill and the whole of the Japoon area. In the latter district the disease was observed in all its outwardly visible stages—from the single light yellow streak running through the leaf and down the leaf sheath to its base to the complete etiolation of the leaves, cankering of the stick, and death of the stool. It is high

time that growers in this and other districts realised the danger of perpetuating such a virulent disease and used more care in the selection of their seed. Crops in which the disease is found present should, if possible, be discarded for seed purposes, even where only one or two stools are found to be diseased. Where difficulty is had in obtaining other seed, fortnightly or tri-weekly visits should be made to the selected block, and all stools showing suspicious leaf marking of any kind destroyed. In a block of varieties showing Leaf Scald at Japoon, Pompi was most seriously affected.

Leaf Stripe.

Very little of this disease is showing up at the present time. In fact it was noticed only in three stools of Badila on two adjacent farms, near the South Johnstone mill, on the eastern side of the river. Incidentally, it is interesting to note that several small blocks of the variety B.208 were examined in the Mourilyan and South Johnstone areas and found quite free from all visual symptoms of the malady.

Rust *(puccinia (Uromyces) Kuhnii).*

True rust was found morse or less prevalent throughout the districts visited. On the whole the damage being done by it is inappreciable, though in the Mourilyan area, where most of it was seen, some stunted fields of Clark's Seedling were found very badly infected by it, every particle or fully unfolded leaf showing the characteristic markings. These latter consist of short orange to dark-brown longitundinal streaks. The length of these streaks vary in different varieties. In Clark's Seedling each individual streak seldom exceeds ⅛ inch in length. If these streaks are examined closely they are found to be wounds in the outer skin of the leaf and to be far more numerous on the under side than on the upper side. The orange-coloured wounds are the younger ones, and it is found that the colour is due to the presence of hundreds of very minute particles which are the young spores or germs of the fungus parasite which causes the disease. A gentle rub of the finger removes these spores in the form of an orange-coloured dust. The wound is simply a bursting of the outer skin of the leaf and is caused by the swelling of these tiny spores, as they gradually attain maturity, since they are first formed within by the parasite. When fully mature they are grey in colour and are not so easily seen. They are then quite loose and ready to be transported to other leaves or stools by the countless scores of insects—flies, leaf-hoppers, beetles, wasps, bees, and bugs which dwell in our canefields. Healthy and vigorous canes are able to resist the germination of these spores, at least on their younger leaves, but the weaker stools readily succumb. Crops showing much rust should naturally not be used for seed, as such cane is of low vitality and possesses little or no power of disease-resistance.

Other Diseases.

One noticeable feature, as has already been pointed out by Mr. Osborn and others from time to time, is the great number of thin, red, or pink sticks to be seen in otherwise healthy crops of Badila in every district. It is probably a question of the combined action of soil toxins and root-fungi. There is no doubt that if the total loss sustained could be estimated the figures would be very great. Top Rot appears to have done but little damage in these parts; a small field of Badila in the Garadunga district was appreciably affected, but nowhere else was the disease found doing noticeable damage. Red Rot was found represented at Daradgee, but only one stick of cane showed the disease; it had doubtlessly been originally brought about by insect attack. One farmer at El Arish complained of obtaining poor strikes at times, because on such occasions the sets decayed before they were able to germinate. In such cases it would be well to soak supplies in Bordeaux wash before planting.

INSECT PESTS.

Grubs.

Serious loss has been sustained in certain localities owing to the ravages of the ubiquitous grey-back cane-grub. Foremost amongst these is Japoon, where a tract of fine light alluvial country about 6 miles in length has received more than its usual quota of damage. The grubs are still in evidence, though this is considered by local growers as being very late in the year for grub infestations. Some farms have as much as from 20 to 40 acres destroyed, the stools for the most part being entirely devoid of roots and having toppled over. The mill authorities are doing their utmost to cope with the situation by harvesting grub-eaten cane first wherever this is possible, in which case densities reaching over 16 c.c.s. are not unusual which compensates a great deal for loss in tonnage. This grub-infested area lies in a valley drained by the Liverpool Creek. The mountains on both sides and the creek banks

support scrub timber which contains many trees favoured by the grey-back beetles in their aerial life, while the soils of the canefields are loose and easy for grubs to work in—this is indeed an ideal home for cane-grubs. Two other localities where grubs have made their presence severely felt are Nerada and Daradgee, the damage having been done mostly on the red soil ridges lying fairly close to unfelled scrub lands. In all these cases the soil should prove quite suitable for fumigation. Odd stools showing grub damage were found here and there throughout the various districts, including the Soldiers' Settlement and the Tully.

Other species of less importance were found as follows:—*Dasygnathus australis-dejeani*, a few in their third stage at El Arish and at Mourilyan, *Lepidiota rothei* at Liverpool Creek, *Lepidiota frenchi* common in parts of Mourilyan, *Heteronyx sollicitus* (?) at Mourilyan. Another grub found fairly plentifully on one farm near Mourilyan Mill was a small Anoplognathid whose identity is unknown to me, but which will probably prove to be *A. mastersi*, the small green metallic Christmas beetle; they were found mostly in their cells at a depth of 8 inches or 9 inches preparing to pupate.

Beetle-borers and Tachinid Flies.

The borer is doing considerable damage at Japoon, Liverpool Creek, and parts of Daradgee. Other localities are also affected but to no very great extent. It is pleasing to note that the Tachinid fly parasite was found well established both at Japoon and at the South Johnstone Experiment Station, where flies have been liberated from time to time by the Meringa Laboratory. They have previously been located by Mr. Bates at Silkwood, where they were liberated some two years back. There is every reason to believe that the flies will spread throughout the South Johnstone district during the next few years.

Minor Insect Pests.

Besides the customary tribe of Leaf-hoppers, Linear Bugs, Leaf Miners, Bud Moths, &c., which are always so numerous wherever Badila is grown, the following minor pests were observed:—Wire worms and white ants (Termes) doing very slight damage to cane sets in Liverpool Creek and other localities; the Army Worm, seen at Liverpool Creek in small numbers; and *Melanitis leda*, of which butterfly a few specimens were seen flying about in canefields in different parts.

The Southern Field Assistant, Mr. J. C. Murray, reports under date, 18th August, 1924:—

Carmilla.

Although this area has been settled for a number of years, it is only since the tramline has gone through that cane has been planted extensively. The agricultural land is fairly typical of that which prevails along the flats of the creeks flowing east of the Dividing Range, having originally been covered with jungle and forest. Growers are all producing good crops, and cultivation and settlement are still extending, affording a good illustration of how people will go on the land if they only get, so to speak, a fighting chance.

The farms here, with a few exceptions, embrace both "jungle" and forest land. What is meant by the former term is that land which has been covered by those heavy brilliant green jungles, replete with beautiful trees and flowers that cover a vast acreage of Queensland soil, and which are wrongly given the rather mean term "scrubs." The forest land is back from the creek, and while of good texture and depth, is deficient in humus. The farmers on this class of land are advised to grow and plough under as much green manure as possible. This forest soil shows an acid reaction, and in conjunction with green manuring would be benefited by an application of about 40 cwt. of pulverised limestone per acre. Samples of typical soils were taken for analyses.

Farmers are fortunate in this locality in that they are not troubled a great deal by the grub pest. Bacterial agencies are in evidence to a limited extent, gumming being noticeable in the Badila. However, there is nothing serious. Growers are again reminded that in order to maintain the present condition, they should be careful in plant selection.

Cane varieties that grow well here are M.1900 Seedling, N.G.15, M.189, and D.1135. The first two canes make excellent growth, but with regard to M.1900 Seedling, the farmers are advised, if they desire to be successful with the ratoons, not to cut too early.

Koumala.

This is also a recently opened district. A light tramline has been constructed by the Plane Creek mill, and prospects at present look bright. Koumala is suited for closer settlement, as the land is arable and well watered. Other products, such as fruit and vegetables, particularly the tomato, do well here. Tobacco is another product that should pay the settlers to grow when the industry becomes stabilised.

There is a considerable acreage of heavy black forest soil in this district, of which the settlers are doubtful regarding its suitability as an agricultural proposition. They may be assured that this soil will give excellent results if it is ploughed at the right time and kept well drained. M.1900 Seedling gives a good tonnage and density in this class of land. Other crops that have been noticed growing on similar soil are potatoes, pumpkins, and cabbages.

There are a number of settlers in this locality from Great Britain. They are getting on well, and are satisfied with the new life. Mr. Innis, of Plane Creek Mill, takes an active interest in land settlement and gives settlers much valuable assistance. It is probable that if the established citizens of North Queensland took a more active interest in land settlement than they do, especially those that have agricultural land available, and made themselves responsible for a number of new settlers, the immigration problem would be on its way towards being solved. It is a matter of the utmost urgency at present that Queensland be populated, both with people on the land and people in secondary industries for which such a fine field exists.

Bundaberg.

Cutting is in full swing. The density of the cane is fair and rising as the season advances. Farmers not engaged in harvesting are planting. The tractor is coming more into general use, being used for drawing the planter as well as the plough. A good man on a tractor hauling two discs may plough 3 acres a day. At Oakwood the best varieties of canes are Q.813, M.1900 Seedling, M.189, E.K.1, E.K.28, D.1135, and 7R.428 (Pompey) The latter, though not planted extensively, shows promise of being a variety worth while. It is an excellent ratooner, and grows a good stool and heavy stick on a moderate soil.

On the Lovers' Walk area the cane has made good growth, and the farmers are satisfied they will get a payable return. Good results have been obtained by fertilising with sulphate of potash, one grower getting marked results by applying 3 cwt. per acre at planting on a block of D.1135. Farmers in this area have trouble with the partially sterile pockets that occur in their fields. These patches are probably caused by the formation of the sub-strata, where the pockets occur the top-soil is shallow and deep on the edges. It would take a number of years to produce fertility, but when ploughing, if a farmer on coming to these were to plough as deeply as possible each time, he would eventually produce a foot of fertile soil. Varieties showing well are—Shahjahanpur No. 10, E.K.28, E.K.2, Q.1121, H.227, Q.813, H.Q.285, and M.1900. Growers are advised to extend the planting of H.227, as it shows a considerable resistance to frost. No disease is in evidence beyond a minor distribution of fungoid and insect parasite attack, which is always present in the canefields.

Settlement is progressing along the main trunk line towards the Kolan River. Around Maida Vale Station there is a fair acreage of land suitable for agriculture, and which has not yet been broken up. Farmers who are established and growing cane have good crops to harvest. From experience of soils similar to these, bonedust is probably the fertiliser that will give results here. Green manures are also essential, as the soil is light and deficient in humus. Cane varieties thriving are H.Q.285, H.Q.77, Q.813, E.K.28, 1900 Seedling, and D.1135. Growers are advised to be careful with H.Q.77, as at times this variety shows a predisposition to disease.

Gin Gin.

At Fairyhills farmers are taking off good crops. They are slightly handicapped in harvesting by the hilly nature of the land and haulage. The soil is of a good quality, however, and there is a local source of lime if at any time growers require to lime. Liming, however, is not yet necessary. Green manuring would improve the present output. The soil is deficient in humus, and erosion would be minimised by the binding effect of green crops ploughed under.

The variety giving the best results is Rappoe Seedling. This cane is heavy and stooling well, with an erect growth. It is not generally high in sugar content, and is susceptible to gumming disease. Growers here are satisfied with this variety, however, and there is no reason to suppose that it will develop disease if careful selection is observed.

At Wallaville the season is in full swing. These fertile river flats are producing good crops. Frost has done small damage. As mentioned in previous reports,

these areas are admirably suited for irrigation. They also require constant cultivation to ensure a crop. On land of this description it is best to endeavour to grow canes that are erect in manner of growth so that intensive cultivation may continue throughout the season. Varieties cutting well are H.Q.285, Shahjahanpur No. 10, N.G.20, and D.1135. The first-named is making a particularly good showing as a ratoon crop. It should cut 30 tons per acre.

The reaction of this soil is slightly acid. Lime to the extent of 30 cwt. of pulverised limestone per acre would be beneficial. Growers are recommended, before fertilising, to submit samples of soil to the Director of Sugar Experiment Stations for analyses, or determine by a local experiment the value of mixtures on the market. These are good farms, and the owners should be getting more off them than they are.

CANE PEST COMBAT AND CONTROL.

The Director of the Bureau of Sugar Experiment Stations (Mr. H. T. Easterby) has received from the Entomologist at Meringa, Mr. E. Jarvis, the following report:—

I have to submit the following Progress Report dealing with the control of the Grub Stage of our Grey-back Cane-beetle (*Lepidoderma albohirtum* Waterh.).

In a previous report (May to June, 1923) the results of certain experiments carried out at Meringa, and on the Greenhills Estate with para-dichlor. proved highly satisfactory (see "Queensland Agricultural Journal," Vol. XX., p. 15); but with a view to obtaining further data in this connection, fifteen additional experiment plots were laid out during December to January last at Woree, Highleigh, Freshwater, Saw Mill Pocket, Aloomba, Meringa, and Hambledon.

The cane treated embraced both plant and ratoon crops of Badila, D.1135, and Clark's Seedling; my object being to test the action of this fumigant not only on Scarabæid grubs, but also on the rooting system and ultimate growth of the stools.

Doses varying from one-sixteenth to one-quarter ounce were buried at an average depth of 4½ inches, injections being made from 12 to 18 inches apart and about 6 inches from the centre of stools.

Conclusive Proof of the Efficiency of Para-dichlor. as a Fumigant for Cane Grubs.

The Woree Experiment Plot.

The cane on grub-infested areas commenced to turn yellow and fall over towards the end of March last, such damage, however, not being widely distributed but occurring for the most part in large patches of varying extent.

At this time the plot of D.1135 treated with para-dichlor. at Woree on 18th December (August planting) could be plainly seen from a hillside more than a quarter of a mile distant, standing out as a dark green strip amongst the surrounding yellowing cane.

Naturally, this contrast became more noticeable as the season advanced and additional grub-eaten stools on the check plot collapsed and fell over.

When visited by the writer on 17th June practically all untreated stools coming within the grubby area were seen lying on the ground, while those on the fumigated plot (a strip 272 feet long by 20 feet wide) presented an unbroken dark green wall of cane about 8 feet 6 inches high. This was best observed from among the prostrate stools on the north-west check plot, which, being mostly down and no higher than one's knees, permitted a side view of the treated strip.

A splendid demonstration of the effectiveness of such fumigation occurred at the north-west end of the plot where grubs had destroyed the cane all around this portion, the injury coming butt up against the treated stools, which had remained untouched and of a normal green colour.

Freshwater Experiment Plot.

This plot of Badila—consisting of one-tenth acre—late July planting—was injected on 30th January, two rows 3 chains long receiving ⅛ oz. and three rows ¼ oz. doses of para-dichlor.

The soil was inclined to be stony, and at the time of injecting was moist and in good condition, while the cane was then well out of hand.

When visited on 2nd July (about five months later) the treated plot was found unaffected by grubs, which, however, had severely damaged check ratoon cane on the southern side.

The stools on the northern check plot were also more or less grub-eaten, while those at the eastern side, which had been badly attacked, had all gone over. At this point, where the fallen cane stopped short against the treated strip, the contrast was most remarkable, affording conclusive proof of the efficiency of para-dichlor. as a grub destroyer.

This plot was doubly interesting from the fact of its having shown that ⅛ oz. doses were sufficient to kill the grubs, there being no perceptible difference between rows treated with ⅛ oz. and those receiving double that amount.

Aloomba Experiment Plot.

This consisted of one-eighth of an acre of Clark's Seedling which was injected 29th January, the cane at that time being about 5 feet high. One-third of this area was given ⅛ oz. and the remainder ¼ oz. injections. Although grubs did not occur in sufficient numbers to kill the cane, their whereabouts were revealed during the dry weather experienced in April and May. At that time the cane growing on check plots adjoining each side of the treated strip was observed to turn yellow and manifest decided evidence of grub injury.

Such infestation, although for the most part confined to a large patch at the western end, was enough to show the contrast between treated and check stools, the former of which remained perfectly green and unaffected by grubs throughout the season, while stools forming the check areas on either side of the treated plot, although kept alive during the remainder of the season by intermittent showers, failed to regain their normal colour.

In each of the abovementioned districts the experiment plots alluded to yielded unmistakable evidence of a positive nature regarding the insecticidal action of para-dichlor. on root-eating cane grubs, and had the season been a dry one accompanied by greater infestation, all the check cane surrounding the plot at Woree, and possibly that at Freshwater, would have turned brown and died, leaving the fumigated areas standing alone amidst the general ruin.

Fumigation With Para-dichlor. Does Not Injure the Cane.

It was interesting to note that in canefields free from grub attack the stools on treated and check plots were of uniform height, colour, and general appearance, proving conclusively that such fumigation had not in any way affected normal development of the stools.

On a plot of D.1135 at Highleigh, indeed, the grower, Mr. J. Cannon, was of opinion that although no decided evidence of grub injury could be noticed either on the treated or check plots, the cane on the former appeared to be slightly higher than that of the untreated areas.

Upon comparing the length of the sticks from these plots while they lay in the field after cutting, this difference in tonnage was quite appreciable.

Unless growth of some of these stools outside the treated area had, in reality, been slightly checked by grubs, we have no alternative but to assume that para-dichlor., like carbon bisulphide, may stimulate growth of the cane by destroying certain injurious soil bacteria.

In view of the fact that an application of the former fumigant is beneficial throughout a period about forty times as long as that occupied by an injection of carbon bisulphide, such an assumption is not at all unreasonable.

Cost of Para-dichlor. and Its Application.

During 1922 to 1923 the price of this fumigant in its crude and refined forms has varied from about £1 18s. to £5 10s. per cwt., the latest quotation from Sydney (June, 1924) being £1 19s.

The cost of material for treating an acre with ⅛-oz. injections of para-dichlor., placed 18 inches apart on each side of the cane rows, would not exceed £2, while the same dose injected at intervals of 12 inches apart would cost £3 per acre.

With the machine already adapted by Massey-Harris under my direction for putting para-dichlor. into the ground (see "Australian Sugar Journal," Vol. XV., p. 708, March, 1924), one man and a horse could fumigate from 3 to 4 acres a day, so that the cost of application should not amount to more than about 7s. 6d. per acre.

Uses of Para-dichlor.

In all probability para-dichlor. will ultimately come into general favour as a fumigant for destroying root-eating grubs of various economic insects, and at the present time is being largely used for fighting beetles, &c., attacking stored products, larvæ of moth borers, white ants in houses, &c., &c.

The following advantages of this fumigant as a controlling factor against subterranean insects may be very briefly enumerated:—

1. Its influence continues operative during a prolonged period.
2. It is not objectionable to handle; is non-inflammable; and not poisonous.
3. Cost of labour for application does not exceed 7s. 6d. per acre.
4. It is insoluble in water.

Para-dichlor. is marketed in the form of irregular small lumps, nodules, or granules of variable size, resembling crystals of sodium carbonate, or hyposulphite, and of a colour ranging from whitish or light yellowish-grey to pale greenish-yellow.

The crystals, although insoluble in water, dissolve very readily in chloroform, carbon bisulphide, ether, &c. A liquid form (ortho-dichlorobenzene) is obtainable at a cheaper rate than the para-compound, but, unfortunately, has the disadvantage of evaporating completely about a couple of days after application.

Similarly, when nodules of para-dichlor. are dissolved in such liquid media, which is then injected into the ground, any recrystallisation of the chemical taking place would necessarily consist only of exceedingly minute crystals which, being separated one from another amongst the soil particles, would evaporate completely in a few hours.

Thus it becomes advantageous to inject the para-dichlor. form, and also to employ large nodules, the fumes from which will be operative during a period of from six to eight weeks.

In plots fumigated last season with the "Jarvis Injector" the para-dichlor. used in these experiments was first passed through a sieve having a mesh of three-eighths of an inch.

The insolubility of these crystalline nodules in water is, of course, a great advantage, since during wet weather evaporation practically ceases, becoming operative again as soon as excess of moisture has drained away.

When to Apply Para-dichlor.

If injected during the wet season when grubs have started to damage the crop, the chances are that on low-lying situations or areas supporting sufficient growth of sticks to overshadow the ground between the rows, such land may remain closed against passage of the fumes until the end of the season, in which case an erroneous impression may get around to the effect that para-dichlor. will not kill cane grubs.

As a matter of fact, this actually happened during the 1922-1923 season on a piece of land belonging to Mr. Painter, at Woree, which was injected on 19th March when grubs were in the third instar and had commenced to damage the cane. Injection was in this case followed almost at once by a precipitation of 14 in. of rain during the next eleven days. The cane on the treated plots being over one's head kept the ground from drying, and when examined about three weeks later it was found that no perceptible evaporation of the para-dichlor. had taken place, and most of the grubs were alive.

About two months after injection, however, when excess of moisture had commenced to drain away, another examination (21st May) revealed a mortality of about 50 per cent. of the grubs still present; ten of these treated stools when dug up yielding collectively twenty-three living and twenty-four dead grubs of *albohirtum*.

During the same season the plots at Meringa, which had been injected about seven weeks earlier than those at Woree, afforded unmistakeable proof of the efficiency of para-dichlor. as a fumigant for cane grubs. (*See* "Queensland Agricultural Journal," Vol. XX., p. 376, November, 1923.)

The proper time, then, to apply this fumigant is during December and January, commencing directly grey-back cane beetles appear on the wing, which usually occurs some time in November.

During these two months the ground is generally in fit condition for such fumigation, and, moreover, one is able at this time of the year to get among the cane and work the ground without risk of damage to the young crop.

In addition to the influence exercised by soil porosity evaporation of this chemical is also affected by degrees of temperature. Our average shade heat during December and January is about 83 degrees Fahr., which combined with suitable soil conditions permits of very free evaporation of the fumes of para-dichlor.

During experimentation at Gordonvale in 1915 the writer observed that in dry weather ¼-oz. doses injected in light volcanic soil at a depth of 7 in., and subjected to an average temperature of 69 degrees Fahr. lost nearly 50 per cent. in weight during a period of fifteen days, but did not quite disappear until the end of six weeks.

Soil under cane stools treated 5th March smelt strongly of para-dichlor. on 8th May—three weeks after complete evaporation of the crystals, from which we may assume that a limited area of such contaminated soil, comprising, say, a strip of land 1 ft. wide, would continue to be repellant against further invasion until the odour became least decided.

On open soils during dry summer weather ¼-oz. injections are not likely to entirely evaporate in less than from five to six weeks, but seven to eight weeks may be taken as the period of evaporation for most soils during average climatic conditions.

When fully exposed to air and daylight, however, on my office table, I found that ¼ oz. of the crushed-up crystals took about fifteen days to completely evaporate, under an average shade temperature of 84 degrees Fahr.

How to Inject Para-dichlor.

This can be accomplished either by a hand injector or a machine, the latter mode being, of course, desirable when treating large areas. All of our experiment plots, excepting one at Kamma this season, have been fumigated with the "Jarvis Injector" which was designed to meet the need for treating small areas of soil with insecticides or fumigants in a dry crystalline form. This appliance, which is simple and inexpensive, would be very serviceable in orchards for fumigating fruit trees to destroy root-boring beetles, wire worms, &c.

The machine experimented with in this connection (alluded to under heading, "Cost of Para-dichlor. and its Application") does not actually inject, but buries uniform doses of the chemical at regular intervals along the rows of cane.

The fumes given off from these crystals are harmless to human beings and domestic animals, and being about five times heavier than the air, work downwards among the interstices between the soil particles. Injection, therefore, should be made about an inch above the level at which grubs are found to be working. Although the vapour as a whole naturally tends to sink in this way, a proportion of the fumes are also drawn towards the surface during the process of evaporation of moisture by the sun.

Growers should remember that para-dichlor. when acted upon by the air does not deliquesce, but very gradually volatilises, thus allowing the gas ample time in which to impregnate the entire strip of soil occupied by the main roots of the cane stools.

The crude and cheaper forms of this chemical are just as effective against cane grubs as the refined qualities. The crude form when opened up upon arrival here was found to be quite moist, and of a pale, greenish-yellow colour, while the fumes given off, in addition to possessing the usual characteristic pungency, emitted an odour somewhat resembling that of burnt sugar. Although this moisture soon evaporates, the sugary smell has still remained unaltered after a lapse of nearly two years.

Work with Para-dichlor. in America.

It is interesting to note that in 1915, while the present writer was conducting first experiments with para-dichlor. against cane grubs at Gordonvale Laboratory, it so chanced that control work was also being commenced at the same time with this chemical and other toxic gases by the Bureau of Entomology at Washington, in hopes of finding some means of combating larvæ of the Peach Borer (*Ægeria exitiosa*), an insect causing injury each year amounting to 6,000,000 dollars. As a result of these experiments, carried out during several seasons, Mr. E. B. Blakeslee clearly demonstrated that para-dichlor., when properly used was uniformly effective against the Peach Borer, and in a recent publication issued by the United States Department of Agriculture (Farmers' Bulletin No. 1246), he states as follows:—"There has now been accumulated a sufficient body of experience, based on large scale, commercial use, and further experiments by the Bureau and others, principally the New Jersey Experiment Station, to show that a practical economic method of control has been found for this heretofore invulnerable pest."

Reverting again to our own experiments with para-dichlor. we also are now in a position to announce that the worst insect enemy of the Queensland canegrower—the dreaded grey-back cockchafer (*Lepidoderma albohirtum* Waterh.)—has at last been dealt a severe blow, the economic significance of which will be far-reaching, and cannot fail to be ultimately realised by all who are aware of the tremendous annual loss to the sugar industry (amounting, it has been estimated, to hundreds of thousands of pounds sterling) caused by the ravages of this well-known cane beetle.

THE LOGAN CANE CROP.

The Director of Sugar Experiment Stations (Mr. H. T. Easterby) paid a brief visit to the Beenleigh territory recently. This area was looking particularly well, and it was surprising to see the large amount of English clover covering practically every paddock.

The cane crop this year is probably larger than at any time in the previous history of the Logan district, it being anticipated that the yield of cane will be 25,000 tons. Of this amount 16,000 tons will be crushed at Mr. Heck's Rocky Point Mill and the balance by the remaining mills.

The Rocky Point Mill, which is now a very fine sugar factory, capable of dealing with about 40,000 tons of cane, was also visited. Recently Mr. Heck has completed 7 miles of tramway, complete with loco. and rolling-stock. This will be of enormous advantage to the Pimpama Island and Norwell districts in the harvesting of their cane. An up-to-date laboratory has also been built and fitted out, and cane at this mill is now bought on an analytical basis.

Considerable improvement has also been made in the Alberton Mill, where new carrier gearing and rollers have been provided, while the engines have been put on new concrete beds. A set of triple effets has been brought from the Waterloo Mill and erected.

Altogether the Beenleigh district shows signs of considerable improvement from a sugar point of view. There are still a few old varieties, such as New Guinea 64 and Mavoe, which should be got rid of in favour of canes such as H.Q.285 and Q.813.

BANANA WEEVIL BORER.

By JOHN L. FROGGATT, B.Sc., Entomologist.

In consequence of numerous inquiries having been made on certain aspects of the Banana Weevil Borer problem, it is deemed advisable to make a brief summary of previously recorded observations, together with certain recommendations, in order that a considerable amount of information may be gathered into a readily accessible form.

The egg is laid in a small burrow in the plant, generally about ground level, and lies just beneath the surface. The opening made for the deposition of the egg is practically closed by the shrinking of the tissue immediately surrounding the orifice, thus forming what is virtually a sealed chamber. The grub emerges in about eight days, and begins to burrow into the plant, closing the tunnel behind itself with waste fibre and excreta. For a portion of its life it works through the outer portion of the bulb, not only devouring tissue but also damaging many root origins, causing them to decay. It also tunnels through the heart of the corm, where through its voracious appetite it reduces the food storage capacity of the plant. When full fed it works towards the surface of the corm, and comes to rest in the end of the tunnel, with a very thin partition separating it from the soil. The grub takes, on the average, about 45 days to mature. In about two days it changes to the chrysalis. This stage in the life cycle is a resting one, during which a complete change in the structure takes place to form the beetle. This occupies a period of seven to eight days. The full-grown weevil on emerging is light in colour and very soft, and remains quiescent for several days, during which time it becomes darker and hard, black being the colour of the mature insect.

Once the beetle leaves the plant it lives in the soil or any old decaying banana material on the ground or in the stools.

The beetles live for a very long time when food is obtainable continuously. From laboratory observations the period extends over sixteen to twenty-one months, during the greater part of which oviposition, though more active in the spring and autumn, is continuous. Without food in dry soil they die in less than one week, but when the soil is damp they may live for several months.

The vitality of the adult weevils is well illustrated by the fact that they will survive as much as twelve days' complete immersion in water.

They will be generally found in old rotting stems and butts that are supersaturated with the fluids from the decomposition of the tissues. As many as thirty-nine live beetles have been taken from one old butt in a stool, and more than 100 from an old rotting stem on the ground.

The study of the effect of poisons on the adults has received a considerable amount of close attention. Although much work yet remains to be done on this line of investigation, it may be here stated that the two most satisfactory poisons used to date are Paris green and powdered arsenite of soda, both used dry and mixed with flour as a diluent, the former in the proportions of 1 to 6, and the latter 1 to 3. The mixture is sprinkled over the freshly-cut surface of a piece of banana corm, which is laid in or just outside any stool in which infestation has been found to occur. Very favourable reports have been received from banana-growers who have used this poison mixture, stating that they have found it kills numbers of the beetles.

This method renders the system of "baiting" a practicable proposition, for the labour and time spent in examining non-poisoned baits and destroying the beetles found was in many cases prohibitive.

This work has been dealt with in greater detail in the article on Banana Weevil Borer in the "Queensland Agricultural Journal," May, 1924.

The very long life of the adults and the consequently lengthened period over which eggs may be laid render imperative the destruction of the beetles at as early an age as possible.

The dispersion of this pest may be brought about in one of three ways—

1. By transportation of suckers from an infested plantation. This is by far the greatest means of distribution. It is therefore to be most strongly recommended that care should be taken to plant suckers that come from a source free from the pest.

Where borer is present in a plantation suckers may be dug perfectly free from the pest; being left lying on the ground they act as baits for the beetles, and as a result some have eggs laid in them before they are carted away. Eggs may, of course, have been deposited in the plants while standing in the stool.

Should suckers be obtained from an infested source, the greatest care should be paid to the following precautions in order to minimise to the fullest extent possible the danger of removing infested plants:—

(*a*) No plant should be dug in any area that has been allowed to go out of cultivation, for the pest is always worse in such localities, as no measures have been taken to check it breeding.

(*b*) When dug the plant should have all trash, &c., removed, and the corm well pared, in order to cut away as far as practicable the portion in which eggs may be lying.

(*c*) As soon as this is done they should be put in a cart or slide (or, as a last resort, in a bag) to prevent their lying on the ground and acting as baits. When a load is ready it should be taken right out of the plantation. Under no consideration should the suckers be allowed to lie in the plantation overnight, as the beetles are essentially night prowlers.

(*d*) Whenever possible it is most strongly recommended that each load of suckers be taken to the new site for planting, but where storage is necessary this should be done at a distance from the plantation, and they should be then kept off the ground.

2. There is no doubt but that the beetles may, and will, crawl from an old area into a newer one as the supply of plant material dwindles. Therefore, a new plantation should not be laid out close alongside an old abandoned one in which the pest is present.

3. By flying. There is no doubt now but that under certain as yet undefined conditions the adult weevils do fly. The information received to date on this matter is extremely scanty, the authenticated cases of normal flight all occurring between December and March. As this is an extremely difficult matter to experiment on, any information on observations made by growers will be welcomed—time of year, time of day, climatic conditions, wind, and the lie of the country are all important considerations in this connection.

As has been emphasised on previous occasions, areas which have been abandoned or allowed to go out of cultivation constitute a decided menace not only to the plantations in the neighbourhood, forming centres in which the pest may breed unchecked, and from which it may spread, but also to the district generally, as constituting a site from which suckers may be obtained for the taking.

Not only do crawling and flight always constitute means of dispersion, but also the wash after rain down gullies or steep slopes may carry beetles or portions of infested plant material for a considerable distance.

Once again attention is, therefore, drawn to this matter, which, if an effective control of the pest is to be aimed at, must be taken in hand. The plants in these old areas must be wiped out, and those in any area, as it goes out of cultivation, must be rendered unsuitable as a breeding-ground or site for shelter for the pest.

Control methods must, therefore, aim at preventing the pest breeding as far as possible. With this object, all old butts and corms should be so chopped up and stems split in half that they will dry as quickly as possible; in that condition the fibre can be chipped in, and so retain the humus in the soil, or burnt. Such beetles as are present will then be forced to congregate in the vicinity of the stools.

To destroy the beetles in the soil, poison baits can be utilised, or untreated baits with subsequent hand collection and destruction of the weevils found. So far no effective treatment is known by which the plant can be protected from infestation, or by which the pest inside the plant can be destroyed.

It is hoped that facilities will be available in the near future to study both these aspects of the problem, so that data may be obtained from which conclusions may be drawn.

For the information of those to whom the Banana Weevil Borer is still a stranger, a note on how to keep a watch for it may prove useful. Old corms, stems, &c., being a favoured breeding site, and easy to cut into, take a grubber or other tool and chop into them. If present, the grub tunnels will be seen, and on these being followed up a fleshy, white, legless grub, about half an inch long, with a red head, should be found. The holes in cross section will be circular in outline. The adult may also be met with, and is slightly less than half an inch in length, hard, black in colour, with a slightly curved trunk in front of the head.

The liberation of the Histerid beetle, *Plaesius Javanus*, from Java, a known predator on the Banana Weevil Borer in its country of origin, is being continued in a small area adjacent to Brisbane. Although it is as yet too early to decide whether it has become established, several imagos of this beetle have been found alive two to three months after liberation.

MENDELISM SIMPLY EXPLAINED.*

BY A. B. BRUCE, M.A., Dip. Agric. (Cantab.), Ministry of Agriculture, U.K.

An attempt will be made in this article to explain Mendelism in simple language. The use of technical terms is reduced to a minimum, and attention is concentrated on facts rather than on theory, though some reference to the latter is inevitable.

It is unfortunate that, in the hands of writers of text-books, Mendel's so-called "theory" assumes a mathematical aspect which terrifies the ordinary reader. The result is that there is still a general failure to recognise the practical bearing of many of the new facts discovered by Mendel and his successors. When I speak of facts, I deliberately exclude "theory." No scientific education is needed to recognise facts; the scientist frames a theory to explain facts and to enable him to predict new facts. Now the discoveries of Mendel, apart from his theories, lead irresistibly to one distinct conclusion of fact—viz., that a parent does not, as commonly believed, transmit to its offspring *something of all* its characters.

Inheritance and Transmission of "Blood."

This, in effect, means that we must no longer regard inheritance as transmission of "blood." We have been accustomed to speak of an animal as possessing half, quarter, or some other fraction of the blood of a progenitor. What the facts discovered by Mendel have taught us is that an animal (or a plant) is, as it were, a pack of cards and that inheritance is a shuffling of two packs of cards (one representing each parent) out of which a new pack is made up. As this new pack cannot contain all the cards of the two original packs, we see how it comes about that the offspring may, in some respects, differ from the parent.

Again, we may contrast the old and modern views of heredity by employing another image. On the older view, or theory, we may liken two parents to two glasses of wine. Suppose one contains red and the other white wine; if we mix the two glasses we get a glass of light red wine, and we know that if we pour out another glass of the mixture the red and white are still intermingled in the same proportion. This typifies the ordinary (and mistaken) view of inheritance; the "blood" has been mixed and remains mixed.

But let us suppose that instead of wine, we were to fill one glass with minute red beads and the other with minute colourless beads. When we mix the two, the

* In "The Farmer and Stock Breeder," 21st July, 1924.

mixture again looks reddish. But this mixture differs from the mixture of wines because the red and colourless constituents still remain separable. A fresh glass could be made up from the mixture, containing either all red or all colourless beads, and this is, in effect, Mendel's discovery. I must repeat that this is not "theory," not something imagined by a learned professor.

The Case of Andalusian Fowls.

The facts relating to the breeding of Andalusian fowls correspond exactly to our simile of the two glasses of beads. The blue (really speckled black and white) Andalusian can be produced by mating a wholly black with a wholly white fowl. The first generation is all blue, really mixed black and white, but the black and white of the two parents can be distinguished. If we now mate two "blue" Andalusians, nature sorts the "beads" for us; for among the offspring of this mating we shall find some birds wholly black and some wholly white. And more; if we now interbreed the wholly whites, the black does not reappear. The black "beads" have been poured off at it were: there will be no reversion to black. Again, there is no theory here. The experiment has been tried many hundreds of times, and always with the same result. In other words, the blood theory is opposed to practice. The first white bird in the above experiment on this theory has one-quarter black "blood." How, then, can we explain the fact that, however long we go on breeding such "extracted" whites together, no sign of reversion to black is ever found?

But we must clearly recognise that what we have found in Andalusian fowls does not necessarily apply even to other breeds of fowl, much less to other animals. For example, we know that if negro and white are mated together, the black skin, or other characters associated with the black, such as type of hair, cannot be bred out so easily. And this consideration brings us to the following. It cannot be assumed that all characters behave in inheritance like the black and white feathering of the Andalusian fowl. All we can say is that it has been proved as a fact by thousands of experiments (particularly in plants) that a very large number of characters do behave like the aforesaid black and white feathering. It must, however, be admitted that in regard, generally, to characters which are valuable economically, knowledge is still deficient. For example, we do not know with any certainty what is the exact mode of inheritance of the milk-yielding capacity of cattle. But this, at least, we do know. The only way in which we can finally clear up the laws of heredity is by studying progeny rather than pedigree. For it is clear that neither pedigree nor external appearance are safe guides if we wish to predict the nature of progeny. Returning to the Andalusian example, it may be pointed out that there is nothing in the appearance or pedigree of the "blue" bird to lead us to expect that its descendants will contain some white birds, or that these white birds will not revert to black or blue. Our knowledge as to what will certainly happen has been derived from experiments with the progeny.

To recapitulate, we see that in regard to inheritance an individual does not behave as an undivided whole. In many respects, though not in all, it behaves like a colony of many individuals. It is only by experiment and observation of progeny that we can discover what these separate colonies or "characters" are. If we must still speak of "blood," we may remember that blood is not a red fluid all through; it is a colourless fluid containing numberless little bodies—corpuscles; some of which—the so-called white corpuscles—are to all intents and purposes little animals leading a separate existence of their own. So it comes about that when two colonies (parents) fuse and produce a third (progeny), some of the individual characteristics of the parents may be dropped—that is, may disappear from the blood entirely. In short, as the modern geneticist expresses it, parental characteristics may segregate in the offspring. The first principle of Mendelism is "segregation" of "characters."

We have learned, then, to regard the parents of an individual animal or plant not as each a single entity, but rather as a conglomeration of diverse characters. We know, therefore, that progeny of a mating is in a great degree not a blend of the parents, but an assortment of characters, some derived from one parent, some from the other.

Reversion.

But, it may be said, reversion is also a fact; we know that a certain character possessed by one or both parents may disappear in the offspring for a time and yet reappear in a subsequent generation.

Another of Mendel's discoveries was that reversion is not a mysterious principle of nature beyond human control. In many cases (not in all) we now know why it occurs, and, what is more important, we can predict its occurrence with as great certainty

as an astronomer can predict the happening of an eclipse years before it occurs. (And, in passing, it may be noted that one of the distinguishing characteristics of scientific, as contrasted with ordinary, knowledge is this power of predicting, this accurate understanding of the working of nature's machine.)

Let us take an example of reversion from cattle breeding. We know that the first cross between a polled and a horned breed (say, between a Polled Angus and a Shorthorn) is hornless (rarely the cross has scurs, or rudimentary horns); and we know that if we breed crosses of this description together reversion to horns may occur. Let us return to the glass bead simile; let us think of the polled parent as the glass of red beads and of the horned animal as the glass of transparent beads. Now in the first cross the mixed beads are coloured; in fact, if we imagine the beads as very small, we shall not see the colourless beads at all; colour dominates want of colour. And now we can see how reversion may occur; for we can sort out a glass full of the colourless beads from the mixed beads of the first cross. And this is what nature does. When it has made up the new reverted horned animal it has sorted out the (as it were) horned beads from the mixture of horned and hornless beads. Further, we see that the new horned animal has no "polled" beads in its composition; the beads are all without colour. It follows that the progeny of this "extracted" horned beast (so long as no polled parent is introduced) will not revert to polledness.

Dominant and Recessive Characters.

We are now in a position to explain the terms "dominant" and "recessive" as used in Mendelian phraseology. These epithets are applied to a pair of contrasted characters such as hornlessness and "hornedness," of which the first is described as dominant and the latter as recessive because (just as the coloured dominate the transparent beads) when both are present in the same individual, the dominant only is apparent, while the other is recessive—recedes, as it were, to the germ cells. During the last twenty years, as a result of numberless trials with plants and animals, a great many such pairs of characters have been found, and, in consequence, precise predictions can be made as to the characters that will appear when certain matings are made. For example, in plants, colour and want of colour (white flowers) generally act as a dominant and recessive; in animals, too, colour is generally dominant to absence of colour; but as an illustration of the complexities of the subject, it may be noted that absence of colour is sometimes produced by a dominant something—probably some chemical substance, under which colour lies hid as it were. For example, it has been found that some individual sheep carry black wool "recessively," and when two such sheep are mated a black lamb may result. This somewhat exceptional case is mentioned in order to emphasise the fact that until trial has been made it is difficult to predict how a character will behave in inheritance.

The Theory of Mendelism.

And now some mention must be made of theory. When a scientist has observed a number of new facts, he proceeds to frame a "theory" which will explain them. The result is that theory often leads to practical results. (The whole of the results of "wireless" are the product of a "theory" of electricity propounded by the great physicist, Clerk Maxwell, fifty years ago in his laboratory at Cambridge.) The Mendelian theory is that when a pair of contrasted characters (Mendelians call them allelo-morphs, one of which may be non-apparent or "recessive") are present in an individual, a germ cell produced by that individual contains either one or other of these characters, never both. (In terms of our simile, this is the way Nature sorts the red from the transparent beads.) So that the contribution of one parent to the new individual, so far as any one character is concerned (always one-half), is of one kind; the other parent contributes also one of the pair of characters only, which may be either similar to that contributed by the other parent, or one of the alternative sort. Thus we see, returning to the beads again, that an individual child of the union of two individuals of the mixed bead type may, so far as that particular pair of characters is concerned, have any one of three alternative "make-ups," viz.: (1) two red beads; (2) one red and one transparent bead; and (3) two transparent beads. Only one conception remains to make a complete picture. We must imagine that an individual is made up of an immense number of beads of all colours (each colour corresponding to one character) as well as a large number of beads no colour; further, each pair of beads may go its own way in inheritance, or, in other words, each pair of Mendelian unitary characters behaves independently in inheritance, so that there may be almost an indefinite number of "make-ups" each containing a different assortment of each colour (as it were) of one or other of the three possibilities described above.

BASIS OF CHART:
1·49 oz. Soda Bicarb.
Neutralise ·1 lb. Acid.

NEUTRALISER CHART FOR SODA BICARBONATE.

IN POUNDS AND OUNCES TO NEAREST OUNCE.

PER CENTUM OF ACID IN CREAM.

Compiled by
FREDERIC J. WATSON,
DAIRY INSTRUCTOR.

To Reduce	·31	·33	·35	·37	·39	·41	·43	·45	·47	·49	·51	·53	·55	·57	·59	·61	·63	·65	·67	·69	·71	·73	To Reduce
To ·29	·29	·31	·33	·35	·37	·39	·41	·43	·45	·47	·49	·51	·53	·55	·57	·59	·61	·63	·65	·67	·69	·71	To ·29
To ·27	·27	·29	·31	·33	·35	·37	·39	·41	·43	·45	·47	49	·51	·53	·55	·57	·59	·61	·63	·65	·67	·69	To ·27
To ·25	Soda Bicarbonate																						To ·25
Lbs. Cream																							Lbs Cream
50	0·0	0·0	0·0	0·0	0·0	0·1	0·1	0·1	0·1	0·1	0·2	0·2	0·2	0·2	0·2	0·2	0·2	0·3	0·3	0·3	0·3	0·3	50
100	0·0	0·0	0·1	0·1	0·1	0·2	0·2	0·2	0·3	0·3	0·3	0·4	0·4	0·4	0·4	0·5	0·5	0·5	0·6	0·6	0·6	0·7	100
200	0·0	0·1	0·2	0·2	0·3	0·4	0·4	0·5	0·6	0·7	0·7	0·7	0·8	0·8	0·9	0·10	0·10	0·10	0·11	0·12	0·12	0·13	200
300	0·1	0·2	0·3	0·4	0·4	0·5	0·6	0·7	0·8	0·9	0·10	0·11	0·12	0·13	0·13	0·14	0·15	1·0	1·1	1·2	1·3	1·4	300
400	0·1	0·2	0·3	0·5	0·6	0·7	0·8	0·10	0·11	0·12	0·13	0·14	0·15	1·1	1·2	1·3	1·4	1·5	1·7	1·8	1·9	1·10	400
500	0·1	0·3	0·4	0·6	0·7	0·9	0·10	0·12	0·13	0·15	1·0	1·2	1·3	1·5	1·6	1·8	1·9	1·11	1·12	1·14	1·15	2·1	500
600	0·2	0·3	0·5	0·7	0·9	0·11	0·12	0·14	1·1	1·2	1·4	1·5	1·7	1·9	1·11	1·12	1·14	2·1	2·2	2·4	2·5	2·7	600
700	0·2	0·4	0·6	0·8	0·10	0·12	0·15	1·1	1·3	1·5	1·7	1·9	1·11	1·13	1·15	2·1	2·3	2·5	2·8	2·10	2·12	2·14	700
800	0·2	0·5	0·7	0·9	0·12	0·14	1·0	1·3	1·5	1·8	1·10	1·13	1·15	2·1	2·4	2·6	2·8	2·11	2·13	3·0	3·2	3·4	800
900	0·2	0·5	0·7	0·11	0·13	1·0	1·3	1·5	1·8	1·11	1·13	2·0	2·3	2·5	2·8	2·11	2·14	3·0	3·3	3·6	3·8	3·11	900
1000	0·3	0·6	0·9	0·12	0·15	1·2	1·5	1·8	1·11	1·14	2·1	2·4	2·7	2·10	2·13	2·15	3·3	3·6	3·9	3·12	3·14	4·1	1000
2000	0·6	0·12	1·2	1·8	1·14	2·4	2·10	3·0	3·6	3·12	4·1	4·7	4·13	5·3	5·9	5·15	6·5	6·11	7·1	7·7	7·13	8·3	2000
3000	0·9	1·2	1·11	2·4	2·13	3·6	3·14	4·7	5·0	5·9	6·2	6·11	7·4	7·13	8·6	8·15	9·8	10·1	10·10	11·3	11·11	12·4	3000
4000	0·12	1·8	2·4	3·0	3·12	4·7	5·3	5·15	6·11	7·7	8·3	8·15	9·11	10·7	11·3	11·14	12·10	13·6	14·1	14·14	15·10	16·6	4000
5000	0·15	1·14	2·13	3·12	4·10	5·9	6·8	7·7	8·6	9·5	10·4	11·3	12·1	13·0	13·15	14·14	15·13	16·11	17·11	18·10	19·8	20·7	5000

Chart showing quantities of Soda Carbonate to be used in neutralising Acid in Cream when it is desired to reduce the Acid to either 0·25 %, 0·27 %, or 0·29 %.

FAT LAMB RAISING.

SOUTHERN EXPERIMENTAL TESTS.

For a number of years the New South Wales Department of Agriculture has been demonstrating at experimental farms in the wheat belt of that State what a profitable branch of sheep-farming lamb-raising is when combined with wheat and other mixed farming. To determine which breed or combination of breeds gives the best result, tests have been carried out with practically every breed depastured across the border.

Following are the principal headings which had to be considered in the tests:—

1. The selection of a suitable breed or combination of breeds which would combine early maturity with the desired conformation in the lamb.

2. The selection of the breed or cross, the ewes of which would excel in milking properties.

3. The capabilities of the ewe flock as scavengers.

4. The breed or cross whose wool would be least affected by the action of the dust, &c., consequent upon the sheep being run on fallowed ground or stubble.

5. The selection of a ewe flock and a breed of ram which would mate at the period most likely to dovetail in with the ordinary workings of a mixed farm.

Summarised briefly the findings of the Department were as follow:—

1. (*a*) The most suitable ram: Of all the breeds tried the earliest maturing lambs were obtained from the Dorset Horn and Ryeland rams, closely followed by the Border Leicester. (*b*) The most suitable ewe: To obtain the earliest maturing lambs of the desired conformation, and of the standard export weight, *i.e.*, 33 lb. to 40 lb. carcase weight, it is necessary to depart from the pure Merino ewe and to use in preference a crossbred ewe; of those tried the Border Leicester x Merino ewe gave the best results, but it was found that there was little to choose between the Border Leicester x Merino and the Lincoln x Merino ewe.

2. Milking propensities of the ewe: It is generally conceded that the crossbred ewe excels in this direction.

3. All our experiments have proved that the crossbred ewe is far superior to the Merino ewe as a scavenger. Not only does the Merino ewe prefer pastures of a finer nature than are generally found on the fallows and stubbles of the mixed farm, but it has been proved consistently that the Merino ewe fails to thrive under these latter conditions.

4. Owing to the recent large advances in the Merino wool market many farmers have changed their flocks from crossbreds to Merinos in an endeavour to participate in the high prices ruling, but it must be emphatically stated that Merino wool deteriorates rapidly in strength and fibre and in general quality when subjected to a large amount of dust, such as is unavoidable when sheep are run on fallows and stubbles. Crossbred wool does not deteriorate to nearly the same extent.

5. Generally speaking, the mating period and the lambing period should be so arranged as to fit in with the general operations of the mixed farm, but the best results are usually obtained from the export lamb market by mating the ewes in December and January; thus having a late autumn lambing and the lambs ready for sale at the end of the lactation period in the spring. Of the breeds tried the Dorset Horn rams have been found to work earlier than other British breeds, and of the crossbred ewes the Border Leicester x Merino has given the best results in this direction. A large amount of difficulty has often been experienced in getting the Long-wool British breeds to work much before February or March.

In the experiments carried out by the Department it was found that there was little to choose, from the point of virility, between the Dorset Horn, South Down, Border Leicester, and Ryeland.

Lambs intended for export should not be shorn. They should be handled as little as possible and given every care so as to avoid knocking about with consequent damage to the carcase.

When selling the lambs from the different tests at Homebush, little difference was found between the mutton value of the different crosses. Weight of carcase appears to be the prime factor in distinguishing between the monetary value of the competing strains.

RESULTS OF TESTS.

Results of tests between rams of the Dorset Horn, South Down, and Shropshire breeds when mated with Lincoln x Merino, Leicester x Merino, and Border Leicester x Merino cross ewes:—

CROSS.

Ram.	Number of Lambs Sold.	Ewe Flock.	Price Realised.
South Down	215	Lincoln x Merino ..	19s.
South Down	238	Leicester x Merino ..	19s.
South Down x Merino ..	276	Border Leicester.. ..	19s. 1d.
Shropshire	226	Lincoln x Merino ..	18s. 10d.
Shropshire	237	Leicester x Merino ..	19s. 10d.
Shropshire x Merino	280	Border Leicester.. ..	19s. 9d.
Dorset Horn	220	Lincoln x Merino ..	20s. 11d.
Dorset Horn	246	Leicester x Merino ..	21s.
Dorset Horn x Merino ..	276	Border Leicester.. ..	21s. 10d.

(The tests covered a period of seven years, between 1912 and 1919, and the final returns, when averaged for the whole period, showed the Border Leicester x Merino ewe to the best advantage as the mother, and the Dorset Horn ram as the best sire, as seen in the above table.)

These results were obtained from the Wagga, Bathurst, and Cowra Experiment Farms.

In 1922 a test was carried out at Wagga Experiment Farm between the cross which had proved the best in all the Departmental experiments, *i.e.*, Dorset Horn ram mated with Border Leicester x Merino ewes, and the Corriedale ram mated with the Border Leicester x Merino ewes, as to which of these two breeds was the earliest maturing, and the following table shows the results obtained:—

Cross.		Ewes Mated.	Lambs Sold.	Average Price.
Ram.	Ewe Flock.			s. d.
Dorset Horn ..	Border Leicester x Merino ..	423	388	19 5
Corriedale ..	Border Leicester x Merino ..	423	383	16 9

It is worthy of note in this experiment that the average return obtained from the Dorset Horn cross lambs from every ewe mated amounted to 17s. 9d. per head, and in addition to this the wool from the ewes showed a net return of 10s. 6d.; thus a gross return from every ewe of the flock amounted to 28s. 3d. for the twelve months.

During 1922 and 1923 tests have been carried out at Bathurst and Cowra Experiment Farms between rams and the Dorset Horn and Ryeland breeds when mated with ewes of the Lincoln x Merino cross, and the table hereunder shows the profitable nature of lamb-raising at these two farms. In the table the results of the two farms have been combined:—

Ram.	Lambs Sold.	Average Price of Lambs Sold.	Ewe Flock.		Ewes.	
			Return per Ewe Mated for Lambs Sold.	Value of Wool per Ewe.	Total Mated.	Return per Ewe for Twelve Months.
		£ s. d.	£ s. d.	£ s. d.		£ s. d.
		1922.				
Dorset Horn x Lincoln-Merino	173	1 3 10	1 0 9	0 10 3	197	1 11 0
Ryeland x Lincoln-Merino	129	1 1 10	0 19 0½	0 10 3	148	1 9 3½
		1923.				
Dorset Horn x Lincoln-Merino	181	1 8 4	1 3 11¾	0 10 4	214	1 14 3¼
Ryeland x Lincoln-Merino	182	1 9 0½	1 4 8½	0 10 4	214	1 15 0½

PLATE 51.—THE GRAND PARADE, ROYAL NATIONAL EXHIBITION, BRISBANE, 1924.

ROYAL NATIONAL EXHIBITION.

THE WEALTH OF QUEENSLAND'S FORESTS, FIELDS, AND PASTURES—A STRIKING PAGEANT OF THE STATE'S VIBRANT PROSPERITY—A TRIUMPH OF ORDERED RURAL INDUSTRY.

Of all the undeveloped countries in the world to-day, Queensland, with its illimitable reservoir of potential wealth, is the land of the young man, the land of the future.

In climate Queensland is particularly well blessed. Its whole range embraces the winter snows on the Southern uplands, the dry atmosphere of the Western plains, and the summer humidity of Northern coastal canefields. Every known economic plant, requiring either temperate or torrid conditions, can be produced prolifically within its borders.

No other country can claim the possession of richer pastoral, agricultural, and mineral resources.

In all the world to-day no land offers greater opportunity to the skill, will, and character of men.

Geographically, Queensland is in a position to supply economically the wants of the Asian eastern mainland, and the Pacific Archipelagos.

The granitic character of her pioneers is expressed in the development we see to-day on the threshold of Queensland's second century—a progress that constitutes the greatest epic in the history of British Colonisation, a progress made fully manifest in Brisbane's record Show of 1924.

Brisbane in all her panoply of spring glory provided a fine setting for the staging of the great annual event. This year the Exhibition was associated with the Centenary of the discovery and exploration of the beautiful river on which the capital stands so picturesquely. No more fitting way of demonstrating the progress of the State during the first hundred years of settlement could be conceived.

Year after year the Royal National Society adds success to success, but its 49th Annual Show, from 11th to 16th August this year, eclipsed all previous achievements. The return of bountiful seasons was made evident by the excellence of the exhibits in every section. District Exhibits and One-farm displays were again outstanding features. The general prosperity of the State was reflected in vast daily attendances of eager, well-dressed, and orderly crowds. On the official opening day more than 75,000 people congregated around the historic arena. The Agricultural Exhibits in the several regional competitions were of a particularly high order. Cotton, Queensland's new industry, was well represented in each competitive section. The Court of the Department of Agriculture and Stock was in itself a complete representation in miniature of every branch of rural industry in the Commonwealth's most richly endowed State. In the Court the science and practice of agriculture and animal husbandry were demonstrated educationally in a most practical and business-like way. Among individual displays those of the Forest Service and British-Australian Cotton Association stood out in strong relief. A representation of the activities of the Technical College illustrated what is being done by the Education Department in practical and progressive training of apprentices—the skilled tradesmen and women of the future. The practical results that have followed the institution of mobile domestic science schools on our State railways were demonstrated arrestingly. This side of the Government's modern rural educational policy was one of the brightest

features in the pavilion displays. Another remarkable feature was the wonderful display of motor vehicles and power tractors that filled the John Reid Hall and the associated annexe, and supplied striking evidence of what might be called the industrial revolution that has followed the development of the internal combustion engine and its corollary in the wheeled utility and luxury of the petrol era. The Fruit Annexe was an excellent show in itself. Probably no better collection, in variety and excellence, of temperate and tropic fruits could be staged in any other country.

In the Stock Sections, sheep, cattle, horses, and pigs showed marked improvement. The Clydesdales and stud pigs purchased in the South by the Government for improving the breeds of home-reared stock were popular ring and pen attractions. A finer muster of hacks and hunters was probably never seen in the Brisbane arena. Competition in every class was keen and the decisions of the judges appeared to give general satisfaction. As compared with the Shows of former years the only noticeable falling-off was among the entries and competition in the stud beef cattle classes, due probably to the present economic condition of the meat industry.

His Excellency the State Governor, Sir Matthew Nathan, opened the Show. Others present at the official ceremony were His Excellency the Governor-General, Lord Forster, the State Premier, Hon. E. G. Theodore, the Minister for Agriculture and Stock, Hon. W. N. Gillies, Messrs. E. G. E. Scriven, Under Secretary, Department of Agriculture and Stock, Ernest Baynes, President of the Royal National Association, J. Bain, Secretary of the Association, and Mr. H. C. Quodling, Director of Agriculture.

This year every factor was in the Society's favour—a week of perfect Queensland weather, record exhibits in number and quality, record attendances from all parts of the country and other States, and capital organisation. Strong in every feature this year's Show was worthy of the State and the great basic industries upon which its present prosperity has been founded.

THE AGRICULTURAL COURT.

REPRESENTATION AND REVIEW OF DEPARTMENTAL ACTIVITIES.

In keeping with the auspicious occasion—Brisbane's Centenary—a fitting and unique display had been prepared by the Department of Agriculture and Stock in the spacious court set apart for the purpose in the Exhibition annexes. In effect, it was a representation of the work and activities of a number of officers of the department engaged in instructional and technical services associated with primary production.

The dominant note throughout was the completeness of detail with which the exhibits in each section had been prepared and described, which in itself was a silent testimony of the whole-hearted interest which the departmental officers have in their work. Efforts such as these are indubitably of national interest and importance in educating both the primary producer and those dependent on him, to the realisation of the fact that scientifically controlled production of food and textiles is not only a noble occupation, but is one well worthy of the fullest possible support of every person interested in the problems associated with the growth and development of this great State.

Exhibits included in the several parts of the court were:—

Sugar.

Varieties of sugar-cane grown at the Bundaberg and Mackay Sugar Experiment Stations, in proximity with which was much detailed information respecting sugar experiment work and the industry generally.

Wool.

Fleeces of wool representative of the best types grown in the State. Educative cards and detail illustrative of the processes of manipulation of wool from the raw material to the finished article; also a unique record of the B.A.W.R.A. operations.

Dairy Products.

These were shown in the progressive stages of manufacture; their uses. Milk, its composition, uses, and commercial products. Composition and food values of dairy products. Factories: Butter and cheese. Statistical and other information. Photographs and illustrations of live stock and factories.

Bacteriological Laboratory.

This display, embraced in the dairy section, was illustrative of micro-organisms of milk and milk products; and of pasteurisation of milk in the home as a means of preventing milk-borne diseases. The housefly, as a disease-carrier, formed one of several very practical and popular series of subjects with which the general public, for their own protection, should be more familiar.

QUEENSLAND'S WEALTH IN WOOL

This year was shown samples in the form of fleeces of the very best wools of the State. Besides the wool in the cases, there were a number of cards illustrating the processes of manipulation which wool undergoes, from the greasy wool sent from

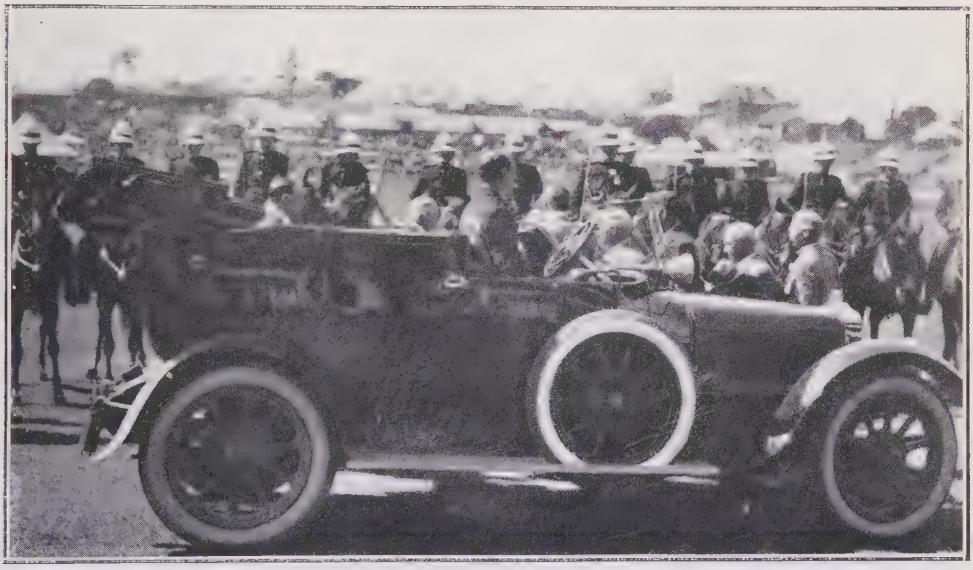

Plate 52.—Arrival of His Excellency the Governor, Sir Matthew Nathan.

the woolgrower, right along to the finished article—worsted and woollen cloth. Tops of various counts, the combed product of wool noils, the waste left by the combing process, carbonising wools and the product, greasy combing and clothing wools with the scoured product, were mounted on cards designed to illustrate what is really a very small number of the many processes which wool undergoes.

Nine highly technical pictures were shown to illustrate the statistics of the B.A.W.R.A. operations. They are of the very greatest value to the wool trade in Australia and, in fact, to the whole world.

QUEENSLAND'S RICH NATURAL PASTURES.

The collection of grasses made at the Gindie State Farm this season, and named and described, were representative of the greatest natural asset Queensland possesses. Interest was added to the exhibit by a number of photographs of Suffolk-Punch horses and beef Shorthorn cattle raised and fed on the natural pastures from which the samples on exhibition had been drawn. Gindie is carried on as a stud

PLATE 53.—HIS EXCELLENCY THE GOVERNOR, SIR MATTHEW NATHAN, DECLARING THE 1924 SHOW OPEN.

PLATE 54.—A SECTION OF THE GRAND PARADE, ROYAL NATIONAL SHOW, BRISBANE, 1924.

stock farm for the improvement of certain breeds of livestock—Clydesdales and Suffolk-Punch draught horses and beef Shorthorn cattle.

Queensland has always had a high reputation for the richness of its natural pastures, and the comprehensive collection of native grasses and forage plants staged by the Department bore testimony that the reputation is well founded. Among the Andropogons are the far-famed Queensland Blue Grass and Satin Top. The former is one of the most palatable and fattening grasses we possess, but is not particularly drought-resistant and is easily eaten out, with the consequence that many blue grass pastures have deteriorated during recent years as a result of heavy stocking. The genus Astrebla contains the well-known Mitchell Grasses, of which Queensland possesses four distinct kinds—more than any other State. The drought-resistant qualities of these and other grasses of the West are well known, a characteristic being their rapid recovery after rain. Among the Star Grasses, to the same genus of which belongs the imported Rhodes Grass, are several highly esteemed for their fodder value. The genus Anthistiria contains the well-known Kangaroo Grass and the Tall Oat Grass. Closely allied to these is the Flinders Grass (*Isiclema*), one of the most nutritious grasses probably extant and relished by stock when dry as well as green. It is a mass of grain heads, hence, no doubt, its high nutritive value. One of the largest genera of grasses is the genus Panicum, of which quite an array of species were shown. They are mostly of high value and occur in mixed pastures rather than in pure stands. One of the best is the Shot Grass (*Panicum globoideum*), which bears long spikes of shot-like grain, and is therefore exceedingly nutritious. Among other grasses shown were some especially adapted for wet and swampy situations, such as Rice Grass, Swamp Couch, Water Couch, *Panicum obseptum*, and *Panicum proliferum*. Button Grass, Crow's Foot, native paspalums, and sorghums, and other grasses all found a place in this comprehensive array.

EDIBLE TREES AND SHRUBS.

Among the more remarkable and valuable features of Australian vegetation is the number of trees and shrubs, particularly in our open western country, that may be used as food for stock. The collections shown of about thirty sorts proved interesting and instructive to pastoralists, stockowners, and farmers generally. Among the many varieties displayed were the Mulga, Kurrajong, Apple Tree, Wild Orange or Bumbil, Beelah, Emu Bush, Whitewood, Myall, Cattle Bush, Red Ash, and Broad-leaved Sally. All these and others have helped to keep cattle alive and in good condition during long spells of dry weather. The propagation, conservation, and utilisation of these valuable trees is a matter of national importance. The Botanical Division of the Department is always willing to report on any samples of plants sent for identification and information by farmers, pastoralists, or others interested.

THE SUGAR INDUSTRY.

DISPLAY BY THE BUREAU OF SUGAR EXPERIMENT STATIONS.

The varieties of cane exhibited by the Bureau of Sugar Experiment Stations included a number of new varieties from Hawaii, Java, and Mauritius. Other varieties shown were raised in Fiji and Queensland.

One of the objects of the Sugar Experiment Stations is the introduction and testing of new varieties. Before any cane varieties are allowed to leave the experiment stations they have to pass chemical and commercial trials through plant, first ratoon, and second ratoon crops. Each variety is tested not less than four times in the course of the sugar season, so that records are obtained giving farmers and millowners information as to whether canes are early or late, and as to whether their sugar contents are sufficiently high to warrant their adoption. This is combined with agricultural trials in the field, so that it may be determined whether such varieties are good croppers. They are further keenly watched for evidence of disease, and no affected canes are allowed to go into distribution.

When varieties have passed these trials they are carefully examined and packed before being sent to growers living at a distance from the stations. Farmers close at hand are permitted to visit the stations and remove varieties selected for distribution. All canes are distributed free to canegrowers, the worthless varieties being discarded. Information of this kind could only otherwise be secured by growers and millers at the cost of much time and money, and the rejection of many useless canes by the mills, which would be accompanied by severe loss to the growers.

Full descriptions of the varieties exhibited appeared on cards attached to the cane, which also gave commercial cane sugar content. Many of these canes are at

present undergoing chemical and field tests, while others have passed the probationary period, and are being distributed to canegrowers. These varieties, however, comprise a very small part of the number of new and tested canes that have been distributed from the experiment stations in the course of the past twenty years. The Sugar Experiment Station at South Johnstone, near Innisfail, has during the past three years been engaged in the direction of raising cane from the seed found in the arrows. This requires the utmost care, as the seed is very minute, and has to be most carefully handled. Specially prepared boxes of soil are used, which have previously been sterilised.

The cane arrows when mature are gently broken off, spread over the soil, watered, and then covered with glass plates. When germination takes place, a large number of minute shoots like grass appear. When these have made further growth they are carefully pricked out into pots or boxes, and are ultimately removed to the field.

At the present time upwards of 600 seedlings have been raised, and the best of these have been selected on their physical appearance and planted. At the present time a great number of them are being tested chemically with a view to ascertaining whether they are likely to be good sugar producers. Several of them which were taken from Badila cane have Badila characteristics, and it is trusted that a cane equal to the Badila will be discovered.

Scientific Farming.

Work at the Experiment Stations also comprises the study of soils, cultivation, and fertilising. It is sought to introduce improved methods of cultivation, liming, fertilising, rotation of crops, and conservation of moisture, and growers are taught the principles of cultivation and business methods by visits to the Experiment Stations, by lectures and addresses delivered in the various sugar districts, and by the issue of bulletins. It may be claimed that this work has been highly successful. The Sugar Experiment Stations analyse soils free for canegrowers, and give advice by personal interviews or by letter on the requirements of the soil in the way of application of lime where necessary, green manuring and fertilisers, and the treatment of the land by proper soil handling. Upwards of 1,000 cane soils have so far been analysed. Cane samples are also tested free of charge, so that growers may know the best time at which to cut their cane. Field officers move around among farmers giving advice on cultural operations.

Research Work.

Investigation and research work in connection with the sugar-cane's most serious pest—viz., the grub—is now being carried out by the Bureau of Sugar Experiment Stations in a systematic manner, and numerous bulletins have been issued upon the subject. The Entomological Laboratories are situated at Meringa, near Cairns, which is the centre of the worst grub-infested region in North Queensland. A chemical fumigant called para-dichlorbenzene has been successfully used during the past twelve months in the destruction of cane grubs.

Economic Value of Cane Cultivation—Its National Significance.

The work of the Sugar Experiment Station, in relation to its promotion of the agricultural welfare of Queensland, in connection with the sugar industry cannot be over-estimated. When it is considered that this industry is the greatest agricultural one in Queensland, and will produce a yield of 330,000 tons of sugar this year, estimated to be of the value of £9,000,000, it can be seen how highly necessary it is that it should be assisted and encouraged in every possible way. Apart from its economic value, however, it has a deep national significance, and has already played a very large part in peopling the North. According to the recent census, the increase in population in the last ten years in the Herbert electoral division was 19·4 per cent., or 14,929 persons, a greater increase numerically than in any other part of the Commonwealth. Queensland's sugar production in 1867 was 338 tons, and this year should be about 330,000 tons.

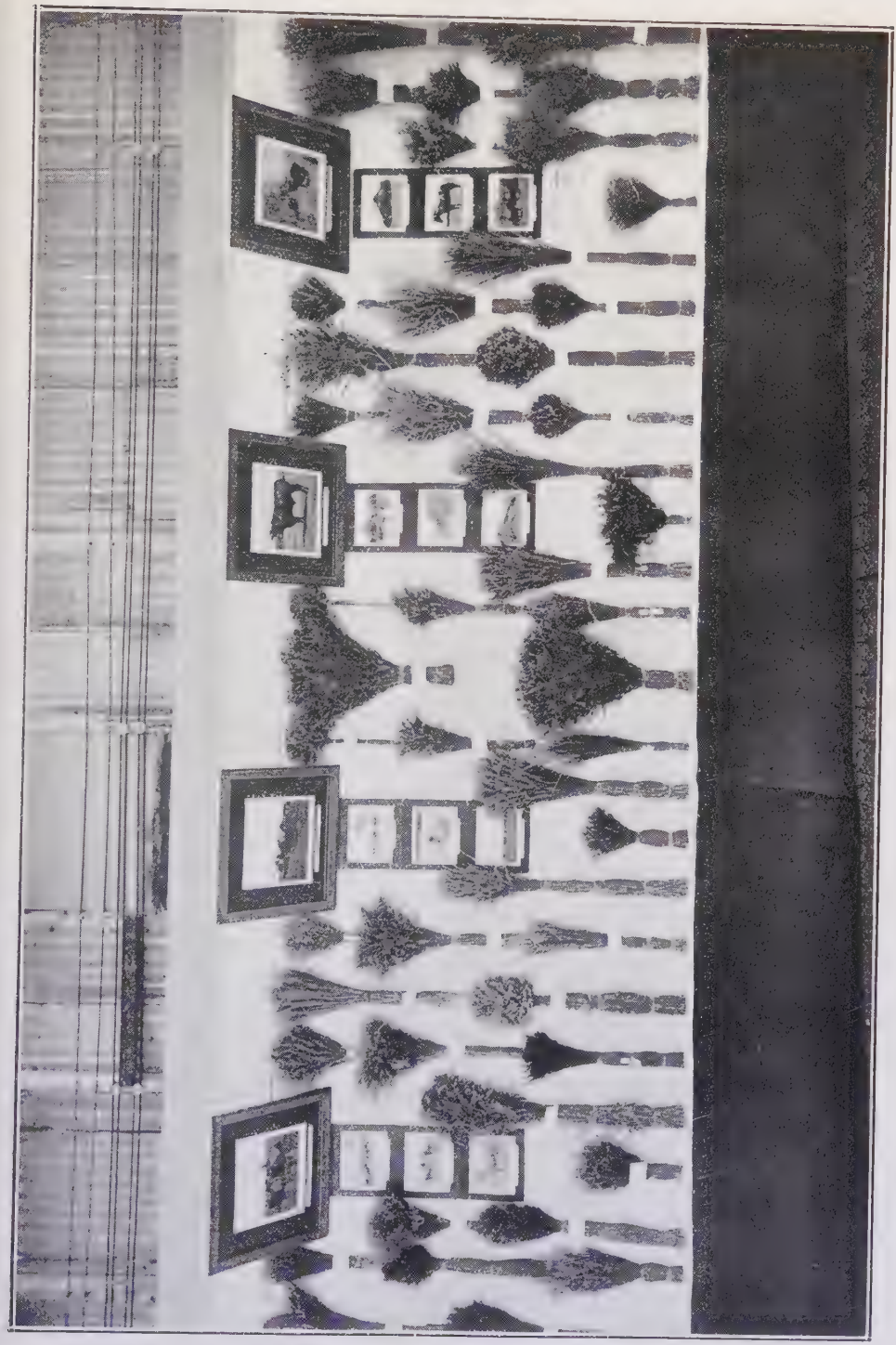

PLATE 55.—QUEENSLAND'S RICH NATURAL PASTURES—A PANEL OF NATIVE GRASSES.

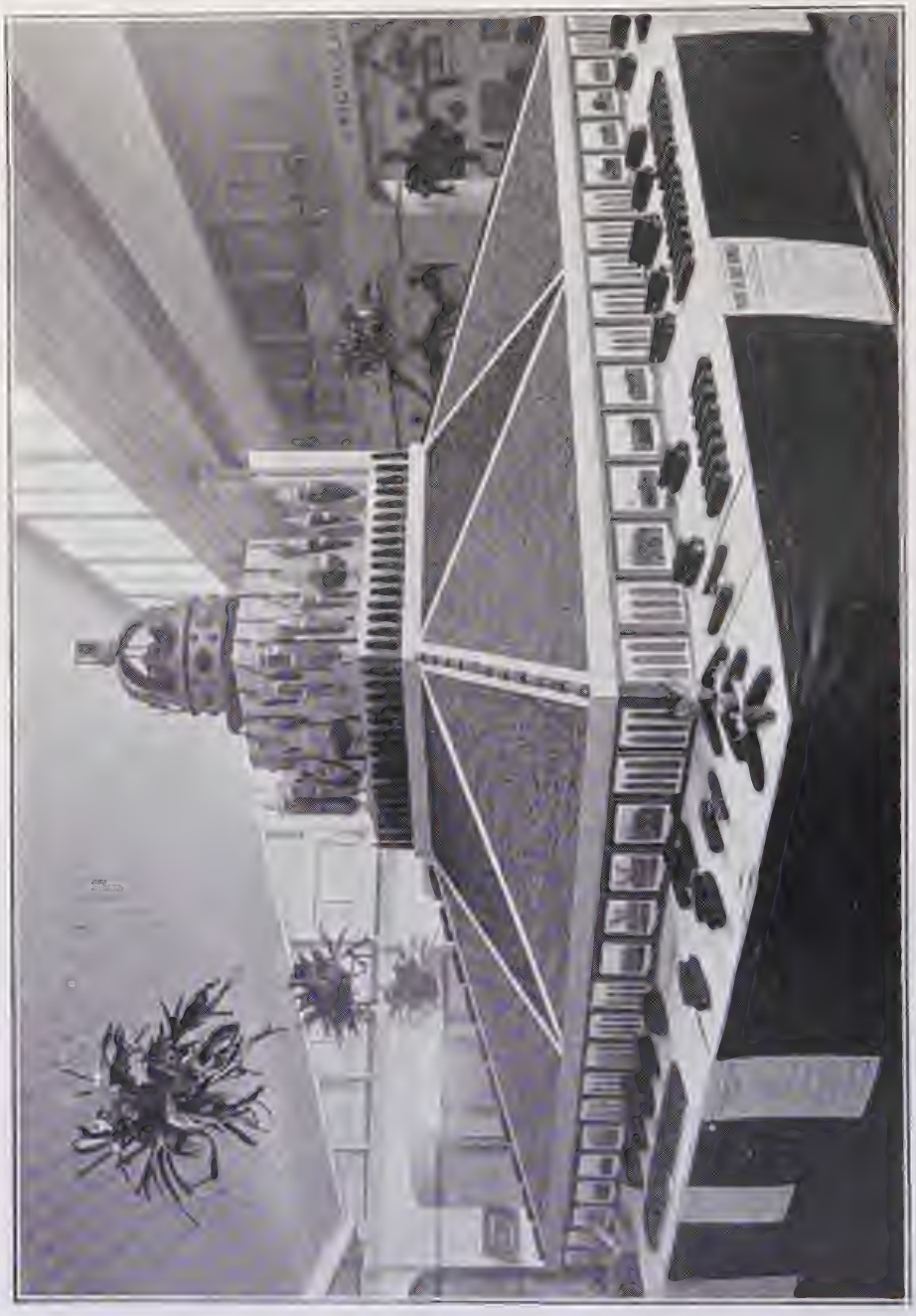

PLATE 56.—MAIZE IS KING—CENTRAL TROPHY, COURT OF THE DEPARTMENT OF AGRICULTURE AND STOCK.

PLATE 57.—WEST MORETON DISTRICT EXHIBIT

PLATE 58.—THE PLANT BREEDERS' TRIUMPH—NEW VARIETIES BRED FROM QUEENSLAND CONDITIONS.
A PANEL IN THE DEPARTMENTAL COURT.

Successful White Labour Production.

Australia is the only place in the world where cane sugar is produced by white labour. We are in competition with countries which produce sugar by black labour and under black labour conditions. In Java, wages are only about 1s. per day, the worker keeping himself.

About £15,000,000 are invested in the Queensland sugar industry. It is the greatest agricultural industry in the State. No other branch of agriculture in Australia employs so much manual labour. The yield of cane and sugar per acre is improving, due to better methods of cultivation and growth of superior canes. The mills have also largely increased their efficiency.

How the Industry has Developed.

It is extremely interesting to note the remarkable increase that has taken place in the sugar yield in districts north of Townsville. It has always been recognised that these districts, with their high rainfalls and humid climate, are essentially fitted for canegrowing. Their development since 1912 has been going on apace, and a far larger increase in population has taken place in the past twelve years than in any other portion of Queensland. Freedom from droughts and frosts are important factors.

Taking the increase every three years from 1910 to 1922, one gets the following figures, to which are added the yield since 1922:—

1910.—Above Townsville, 7 mills, 57,135 tons; below Townsville, 42 mills, 153,621 tons.

1913.—Above Townsville, 7 mills, 62,414 tons; below Townsville, 41 mills, 180,423 tons.

1916.—Above Townsville, 9 mills, 98,396 tons; below Townsville, 38 mills, 78,577 tons.

1919.—Above Townsville, 9 mills, 101,351 tons; below Townsville, 33 mills, 60,785 tons.

1922.—Above Townsville, 9 mills, 120,617 tons; below Townsville, 31 mills, 167,618 tons.

1923.—Above Townsville, 9 mills, 160,000 tons; below Townsville, 29 mills, 109,175 tons.

1924.—Above Townsville, 9 mills, estimate 168,000 tons; below Townsville, 29 mills, estimate 162,000 tons.

The area under cane since 1910 has increased 100 per cent. Two new sugar-mills have been erected, a third is now in course of erection, and the seven original mills have all considerably increased their efficiency and capacity. The increase in the yield of sugar achieved by districts north of Townsville since 1910 has more than doubled. In this development the Government of Queensland has played a large part in erecting new mills and encouraging the sugar industry in every possible way.

WHEAT.

The eminently practical system of breeding wheats at the Roma Wheat-breeding Farm to suit Queensland conditions were fully demonstrated by an excellently arranged series of specimen plants mounted on screens. A detailed explanation of the Mendelian theory of plant-breeding and of the inheritance of certain characteristics were featured in a most instructive manner, enabling the student to recognise and trace these in the first and second filial generations.

Wheats bred at Roma, after undergoing exhaustive tests, are passed on to officers of the field branch, who try them out under varying conditions in different districts to determine their suitability to Queensland conditions. Valuable work is being done. Two seasons ago upwards of 500 acres were sown with new varieties, the test plots being spread over a wide range of country, with the result that a high average yield of 22½ bushels per acre was obtained, the maximum yield being 40 bushels per acre. Facts such as these indicate the practicability of scientifically-controlled wheat improvement work.

MAIZE.

On the maize trophy, situated centrally in the Court, the several varieties undergoing improvement were shown. Different phases of the work of selecting seed and the methods employed to improve the yield and standard of quality of Queensland's principal cereal were shown. Proof of the success of these methods is to be noted from the records established in the matter of crop yields, 116 and 117 bushels per acre having been obtained with this seed from a four and a five months' variety respectively when grown under field conditions. High productivity and uniformity of type, combined with other essentials, were featured in the exhibit. A corollary to this scientific method of seed improvement is to be found in its practical application to a scheme for the regular distribution by the Department of Agriculture of approved highly productive stud seed corn.

Tested and Proved Varieties.

Improved Yellow Dent is a five to five and a-half months' variety, suitable for scrub lands and coastal districts, particularly on alluvial soils and where there is a good rainfall. This is a proved heavy yielder, having returned, under field conditions, over 100 bushels to the acre.

Golden Beauty is a medium late variety, taking from four and a-half to five months to mature, a heavy yielder, also a good fodder corn. A very hardy variety, and has a very high shelling percentage.

Star Leaming is a medium early variety, about four months, and one of the best of the early varieties. Very suitable for early or catch crops, and where there is a short growing season. Ears are very heavy and compact.

Reid's Yellow Dent is a four months' variety and a splendid yielder. This is also a suitable maize for districts where there is a short growing season, and is an excellent fodder corn. This season a plot of this variety yielded 96 bushels per acre from 4 acres.

Funk's Yellow Dent is another four months' variety, also a good yielder. Ears are weighty and very tightly packed. Like Reid's, it is suited for early crops, or districts which have a short growing season; also a good fodder corn.

Funk's 90-Day was imported two years ago by the Department, with the idea of securing a high yielding type to meet an insistent demand for a quick maturing variety. Excellent results have been obtained. The variety has proved to be a good yielder and an ideal variety for the purpose for which it was imported. It can also be recommended as a good fodder corn.

COTTON.

The display of the cotton section this year had been prepared from an educational point of view rather than as a general spectacular feature of the Show. It is believed that the cotton-growing industry has passed the phase where it needs to be boomed and kept before the public, and that more attention should be paid to the fundamental points of cotton-growing.

With this object in view, the exhibit this year embraced various features illustrating the proper method of thinning; the effect of closely spaced and properly spaced plants; the effect of droughty conditions on properly spaced plants when grown on improperly prepared seed beds, and the development of the root system of plants grown on well-prepared and poorly-prepared seed beds.

On a separate stand a comprehensive display was arranged of various features illustrating important phases in connection with the matured cotton, such as a set of the standard grades of seed cotton which are used in grading Queensland cotton with samples of lint obtained from the corresponding grades; a chart illustrating the relationship of the Queensland set of grades to the world's universal standard set of grades; samples of seed cotton illustrating the effect of trash and foreign matter on mature and immature grades; samples of seed cotton of the ordinary and Durango

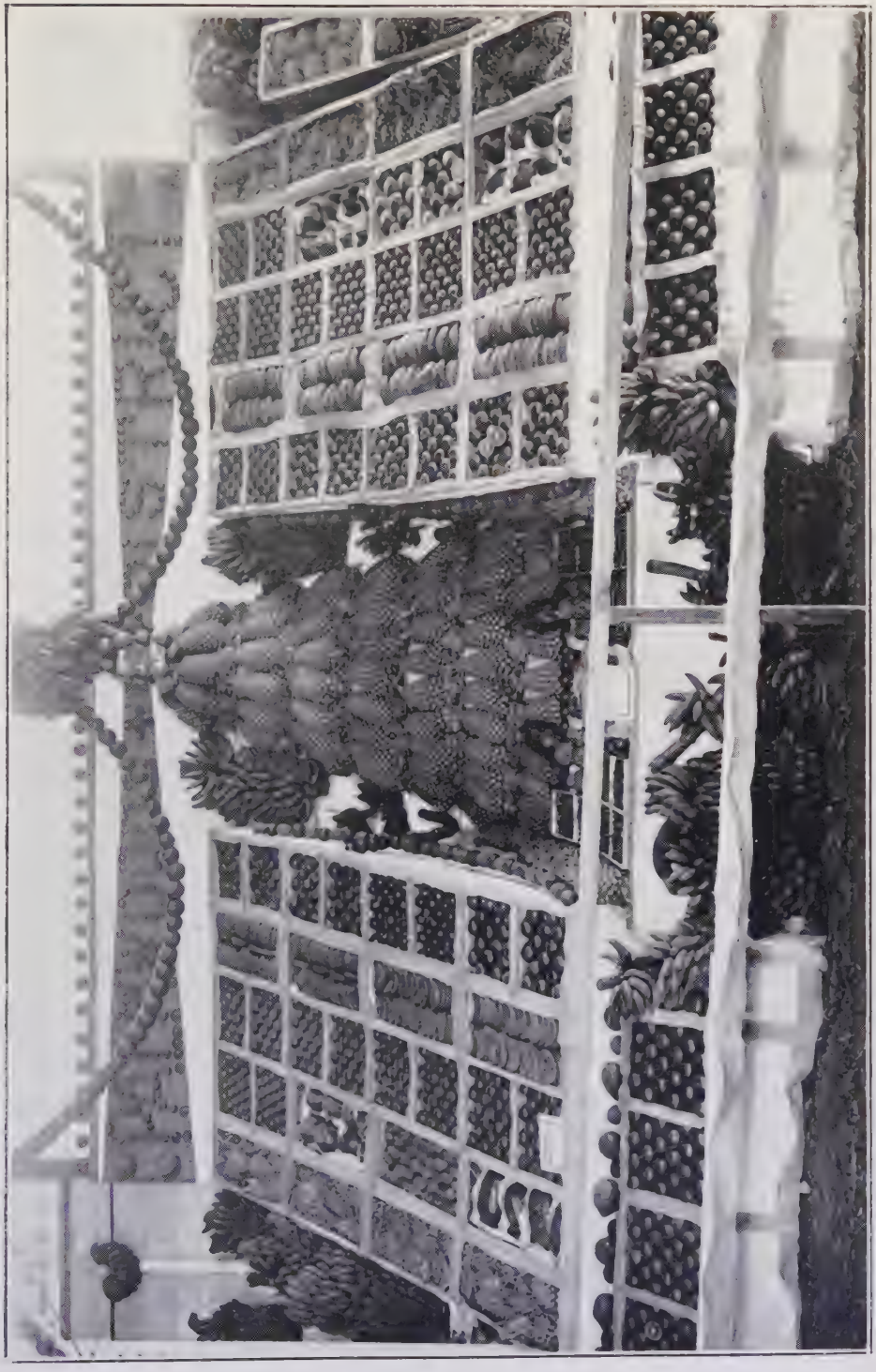

Plate 59. Field from the North Coast Cocoa—Palmwoods District Exhibit.

PLATE 60.—QUEENSLAND'S WEALTH IN WOOL ILLUSTRATED, DEPARTMENTAL COURT.

PLATE 61.—AN INSTRUCTIVE COTTON EXHIBIT, DEPARTMENTAL COURT.

Plate 62.—The Science of Agriculture Illustrated—Departmental Court.

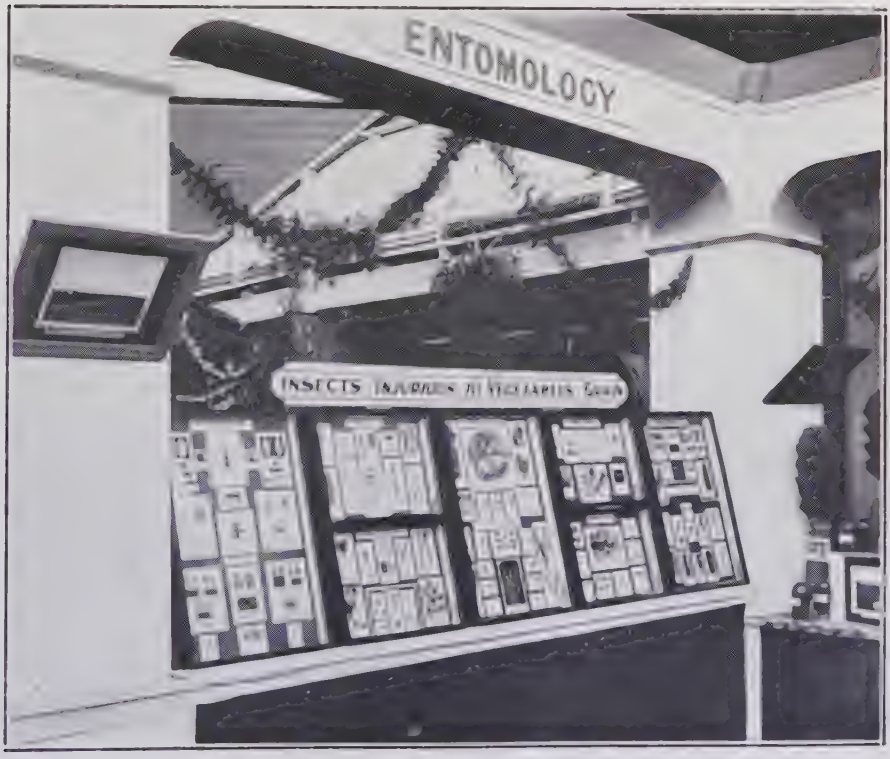

Plate 63.—Science Aids the Farmer—The Entomologist's Exhibit, Departmental Court.

PLATE 64.—THE PALM-SHADED JUDGING RING, BRISBANE SHOW GROUND, 1924.

PLATE 65.—JUDGING AYRSHIRES, ROYAL NATIONAL SHOW, BRISBANE, 1924.

varieties to illustrate the greater uniformity of the latter, which is the variety that the department is distributing at present; panels of combed fibres on the seed to show the uniformity of the Durango cotton.

As the by-products of the cotton crop are of great importance, a representative display of the products of the oil mill was also shown, which included samples of crude oil, refined glycerine, cotton-seed cake, cotton-seed meal and cubes, and the delinted seed.

SWEET POTATOES.

The nomenclature and classification of sweet potatoes has been carried on in the Central district for some years. The exhibit, comprising upwards of forty varieties, had been arranged to furnish the fullest possible information on the merits of the several varieties. Extraordinarily high yields have been obtained on small experimental areas, exceeding in the case of cattle varieties 30 tons per acre.

THE DAIRYING INDUSTRY.

The display in the dairy section had been designed for the purpose of giving prominence to the importance of the dairying industry in Queensland, and to impress upon the minds of visitors to the Royal Show the necessity for and the intrinsic value of dairy foodstuffs in the dietary of humans. An endeavour had been made also to conserve the instructive and educational value of the exhibit.

The composition of milk, and the many purposes for which milk is used, were clearly shown. The principal commercial products made from milk were featured,

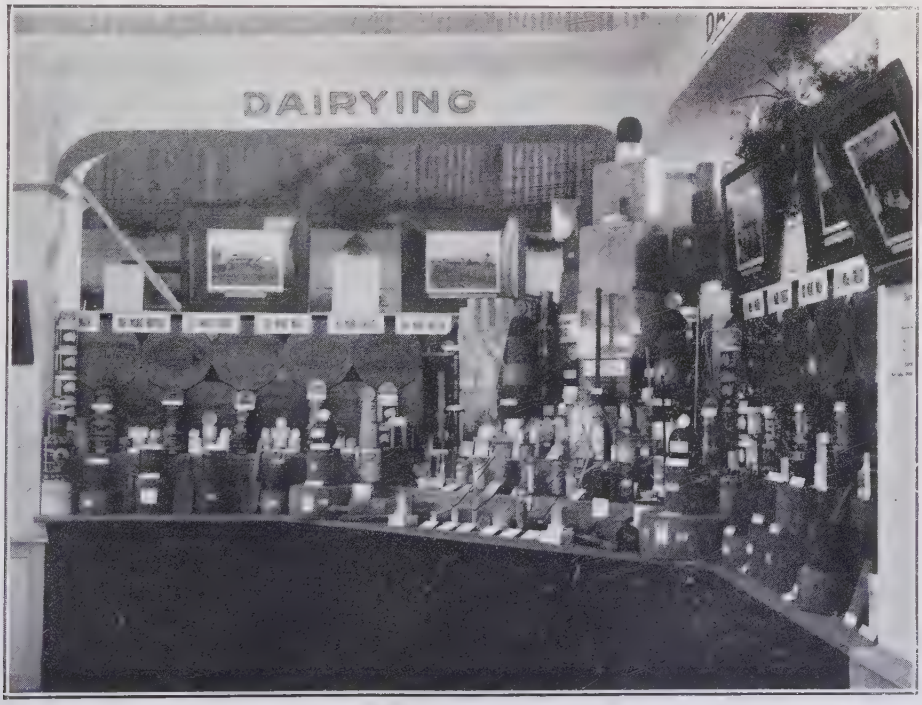

Plate 66.

In 1915 the annual value of dairying to Queensland was approximately £1,500,000. Its present annual value, exclusive of by-products, is approaching £7,000,000. In the State there are 563,683 head of dairy stock on 22,876 dairy farms. A display in the Departmental Court illustrating how the Government aids the Industry.

together with the more important by-products. The composition and food values of dairy products were also displayed in concise and attractive form.

Butter and cheese were shown in the progressive stages of manufacture. With a view to emphasise the growth of the industry and the numerous companies which are at present engaged in the manufacture of butter or cheese, there was staged as a background to the trophy a full range of the registered brands under which the factories' product of first quality is marketed.

PIG RAISING.

This exhibit was prepared for the purpose of illustrating the possibilities of pig raising in Queensland, special reference being made to the several breeds of pigs considered to be most suitable to our climatic conditions. Much useful information was displayed on printed cards; and a number of illustrations of factories and other items of interest were also shown. A special exhibit of pig foods were on view, together with detailed information as to their value, and the most suitable combinations for maintenance and fattening purposes.

A display of bacon was also made to indicate that over-fat, extra-heavy, and otherwise faulty pigs are unprofitable to market in this condition.

The Department of Agriculture and Stock is giving special attention to the pig raising industry. Space was allotted in the Department's Court for a display of particular interest to the pig farmer. A well-illustrated and informative brochure had been prepared for distribution to those most interested. This publication, the first of a series of pamphlets on the subject of pigs, deals in general terms with matters of special import in relation to the growth and development of the industry. The title, "Pigs for Profit," in itself creates a desire for further information, and as Queensland this year has a record crop of maize particular reference is made to its usefulness for the purpose of fattening pigs.

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PLATE 67.—THE JOURNAL CORNER, DEPARTMENTAL COURT.

Typical Stud Pigs.

Displayed in a prominent position in this section were enlarged photographs of typical stud pigs of the several types most suited to Queensland conditions. The Berkshire is the most popular and widely distributed of all the modern breeds. The Tamworth, the old English wild pig, has now been thoroughly domesticated and improved to such an extent that he is regarded as of especial value for crossing with Berkshires and other medium types for the production of ideal bacon pigs. The Poland-China is an American type, admirably adapted for use in producing the lighter weight bacon pigs now so much in request, and the Middle Yorkshire is the famous old Yorkshire cottagers' pig that, perhaps, is not quite so suitable for our warmer climes.

The Duroc-Jersey, a popular American and Canadian type, and the Gloucester Old Spot, an old Gloucestershire pig, both quite recently introduced into Australia, are, perhaps, not so well known here. Special reference is made to these in the brochure and to their value for our trade.

Another attractive feature depicted sides and pieces of bacon from pigs that had been injured in transit to market. The pig industry suffers loss to the extent of thousands of pounds annually through careless handling of the stock prior to the time they are actually slaughtered.

Much useful information was displayed on printed cards having special reference to the industry, and to the possibility of its extension throughout the State. A photograph of the North Queensland Co-operative Bacon Factory, recently opened at Floreat Siding, Mareeba, on the Cairns-Atherton Railway, at a cost of £13,500, is in itself definite proof that the pig is proving of value in those great maizegrowing and mixed farming districts in the Northern division of the State.

Variety of Foods.

That there are a great variety of foods which can be successfully used for the purposes of raising pigs was demonstrated by a collection of suitable foods. These included both bottled exhibits and the foods as they are produced on the farm, such as artichokes, arrowroot, peanuts, sweet potatoes, and mangolds (root crops), maize, oats, barley, and wheat (cereals), cowpeas and field peas (legumes), grain sorghums, a grain crop, dwarf Essex rape, kale, Belgian field carrots, and sugar-cane (green crops), with pollard, bran, cotton-seed cake, molasses, and other concentrates.

An interesting exhibit of bacon unsuited to our market requirements through being overfat and too heavy, and otherwise faulty, attracted considerable attention. Farmers are losing money, it was pointed out, through marketing their pigs in an unsatisfactory over-weight condition.

STOCK DISEASES EXPERIMENT STATION.

The entire exhibit of the Stock Diseases Experiment Station at Yeerongpilly was illustrative of micro-organisms in milk and milk products. One section demonstrated the very important rôle that bacteria play in the milk and dairy industry. By means of diagrams, charts, plate, and tube culture, &c., it was shown that practically all the natural changes which take place in milk, whether good or bad, from the time that it is drawn to the time that it is consumed or otherwise used are due to the action of the various milk-borne diseases.

Another section dealt with the pasteurisation of milk for home use. It was clearly demonstrated that by heating milk for ten minutes at a temperature of 160 degrees Fahr. the germs of typhoid, diphtheria, tubercle, and the various septic bacteria are readily destroyed, while if the milk is subsequently kept cool it will keep perfectly sweet for a much longer period than untreated milk.

There was a large collection of the kinds of micro-organisms which have been isolated from butter, cream, cheese, and milk. These were shown growing in a pure state in tubes of artificial culture media, and included species of bacteria, yeasts, and moulds. There was a number of specimens of pathogenic bacteria isolated from milk, the most important being tubercle bacilli.

As a means of prevention of milk-borne diseases, pasteurisation in the home was advocated, and with ordinary kitchen utensils the simple methods for carrying out the process were shown. The advantages of pasteurisation are that the germs of tuberculosis, typhoid, and diphtheria are killed, while the milk will keep sweet for a longer period than untreated milk.

ENTOMOLOGY AND PLANT PATHOLOGY.

The Entomological Section was of a most comprehensive character and of high educational merit. Life histories of insects were clearly set out. Specimens of insects which attack, during their lifetime, fruit, vegetables, grain, cotton, and stock were exhibited. Insects of significance and which are the subject of special investigatory work at the present time are the fruit fly, the banana weevil borer, and the pink boll worm.

Several diseases affecting fruit and vegetables were illustrated most graphically.

PLATE 68.

How Queensland Dairymen are served by Science—The Yeerongpilly Stock Experiment Station's fine object lesson in the Departmental Court.

PLATE 69.—SUCCESSFUL WHEAT-BREEDING ILLUSTRATED IN THE DEPARTMENTAL COURT.

The plant breeder in search of certain characteristics makes a selection of parent plants and cross fertilizes the flowers to bring about a re-combination of characters with a corresponding increase in vigour; and seeks also to fix those desired in the progeny by selection.

PLATE 70.—JUDGING JERSEYS, ROYAL NATIONAL SHOW, BRISBANE, 1924.

PLATE 71.—CHAMPION FRIESIAN COW.
"Dairymaid," the property of Mr. P. P. Falt.

PLATE 72.—CHAMPHION AYRSIRE COW, 1924.
"Belle of Longlands," the property of Mr. Jonas Holmes.

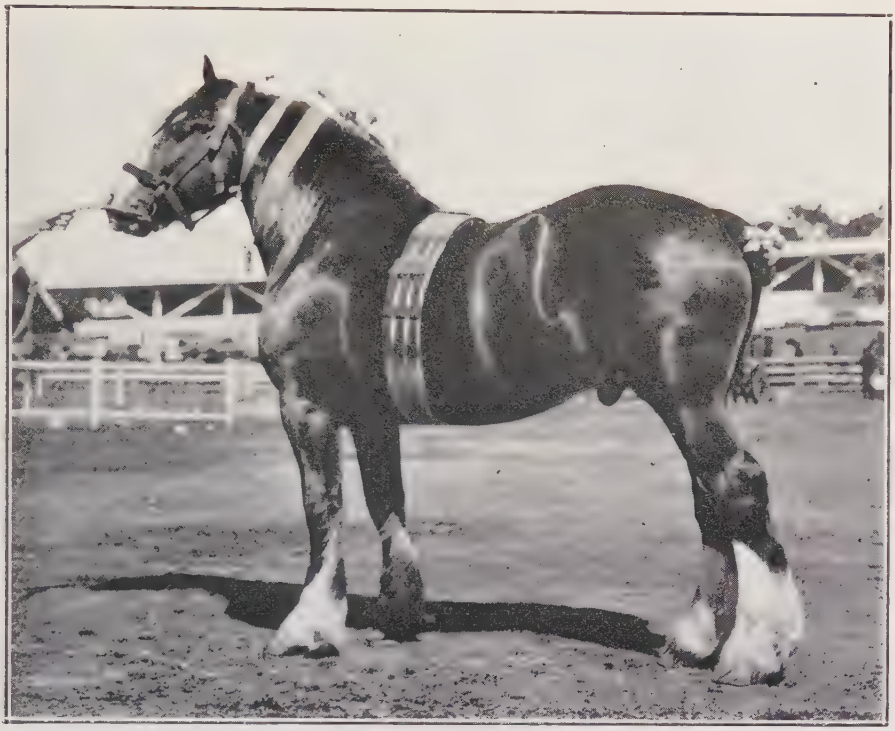


Plate 73.—Champion Clydesdale Stallion, 1924.
"Windermere Bay Kennedy," the property of Mr. A. T. Croswick.

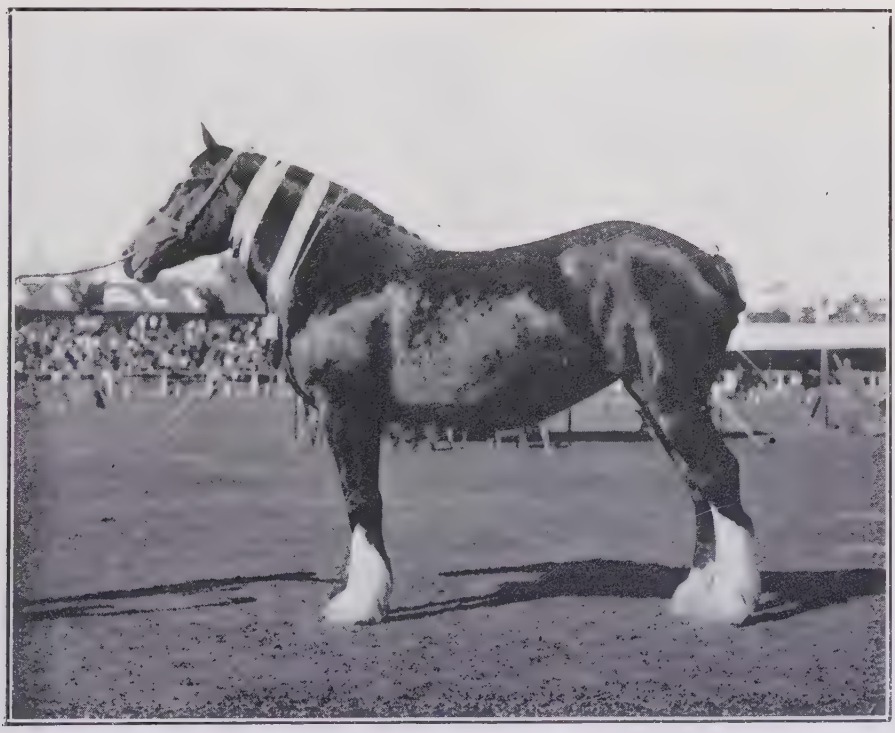


Plate 74.—Champion Draught Mare, 1924.
"Lady Cellus," the property of Mr. Gavin Elliott.

THE AWARDS.

DISTRICT EXHIBITS.

A contest between West Moreton, the holders of the Chelmsford Shield, and Wide Bay provided a good competition. Both exhibits were very fine indeed, and in a comparison of the points it will be seen that in the grand total there is only a difference of 55½ points, and these were in favour of West Moreton. In the comparative table of points in the respective sections there were good competitions. West Moreton won in dairy produce, foods, grain, manufactures and trades, minerals, and building materials, hay, chaff, &c., wool, &c., enlarged photographs, and effective arrangement. Wide Bay won in fruit, vegetables, &c., tropical products, and wines, &c. They were equal in tobacco. It will be noted that in effective arrangement that out of a possible of 80 points West Moreton secured 77 and Wide Bay 71, so organisers of both paid close attention to details. As a result of their win West Moreton retains the right to hold the Chelmsford Shield for a further period of twelve months. Details:—

PRIMARY PRODUCTS AND MANUFACTURES.

CHELMSFORD SHIELD.

	Possible Points.	West Moreton.	Wide Bay.
(1) DAIRY PRODUCE—			
Butter, 1 box, 56 lb.	90	86	84
Milk, condensed, concentrated, or dried, and by-products	40	38	12
Cheese, not less than 1 cwt.	60	52	53
Eggs, suitable for domestic use; 1 doz. of each variety	20	17	16
	210	193	165
(2) FOODS—			
Hams and bacon	50	45	35
Rolled and smoked beef and mutton	20	15	8
Smallgoods and sausages, if smoked or preserved	10	10	5
Fish, smoked, preserved, and canned	10	4	8
Canned meats	25	20	8
Lard, tallow, and animal oils	20	15	12
All butchers' by-products, not included in any other part of scale of points	10	10	8
Honey and its by-products	20	18	19
Confectionery, factory-made	10	10	8
Bread, biscuits, scones, and cakes, factory-made	10	8	10
	185	155	121
(3) FRUITS, VEGETABLES, AND ROOTS—FRESH AND PRESERVED—			
Fresh fruits—all kinds	60	47	55
Preserved fruit, jams, &c.	30	24	28
Dried fruits	20	9	10
Fresh vegetables—all kinds, including table pumpkins, but excluding potatoes	25	15	12½
Potatoes, English and sweet	40	27	33
Preserved and dried vegetables, pickles, sauces, &c.	10	8	10
Roots—all kinds, and their products, arrowroot, cassava meal, &c.; samples not less than 1 lb.	14	9	12
Cocoanuts, peanuts, and other nuts	6	3	4
	205	142	164½

PRIMARY PRODUCTS AND MANUFACTURES —*continued.*

CHELMSFORD SHIELD—*continued.*

	Possible Points.	West Moreton.	Wide Bay.
(4) GRAIN, &c.—			
Wheat	50	40	26
Flour, bran, pollard, macaroni, and meals prepared therefrom	10	..	9
Maize	60	42	38
Maizena, meals, starch, glucose, and cornflours	10	7	1
Oats, rye, rice, barley, malt, pearl barley, and their meals	30	25	22
	150	114	96
(5) MANUFACTURES AND TRADES—			
All woodwork	30	26	24
All metal and ironwork	30	24	26
Leather and all leather work and tanning	20	13	18
Manufactured woollen and cotton fibre	30	30	..
All tinwork	10	8	6
Artificial manures	10	8	6
Brooms and brushes	10	6	6
Manufactures not otherwise enumerated	15	10	14
	155	125	100
(6) MINERALS AND BUILDING MATERIALS—			
Gold, silver, copper, and precious stones	25	16	15
Coal, iron, other minerals, and salt	30	20	25
Stone, bricks, cement, marble, terra-cotta	20	20	12
Woods—Dressed, undressed, and polished; one face to be dressed and half of it polished; back to be rough; samples of wood to measure not less than 12 x 6 x 1 inch thick	25	24	23
	100	80	75
(7) TROPICAL PRODUCTS—			
Sugar-cane	60	25	58
Sugar (raw and refined)	20	10	20
Rum, spirits, and by-products	10	2	10
Coffee (raw and manufactured)	..	..	..
Tea and spices	10	5	8
Cotton (raw) and by-products	30	22	23
Rubber	10	..	5
Oils (vegetable)	10	10	8
	150	74	132
(8) WINES, &c.—			
Wines	15	1	10
Aerated and mineral spa water, vinegar, and cordials	10	8	9
	25	9	19
(9) TOBACCO—			
Tobacco (cigar and pipe) in leaf	20	18	18

PRIMARY PRODUCTS AND MANUFACTURES—*continued.*

CHELMSFORD SHIELD—*continued.*

	Possible Points.	West Moreton.	Wide Bay.
(10) HAY, CHAFF, &C.—			
Oaten, wheaten, lucerne, and other hay	30	22	18
Grasses and their seeds	10	8	7
Oaten, wheaten, lucerne, and other chaffs	50	41	32
Ensilage and other prepared cattle fodder	20	16	12
Sorghum and millets, in stalk	10	9	8
Commercial fibres (raw and manufactured)	10	8	5
Pumpkins and other green fodder	10	9½	7
Broom millet, ready for manufacture	10	6½	8
Farm seeds, including canary seed	13	9	11
	163	129	108
(11) WOOL, &C.—			
Scoured wool	40	37	35
Greasy wool	60	56	53
Mohair	10	8	8
	110	101	96
(12) ENLARGED PHOTOGRAPHS—			
A maximum of 5 points will be awared for enlarged photographs of district scenery and local-bred live stock	5	5	1
(13) EFFECTIVE ARRANGEMENT—			
Comprehensiveness of view	30	28	27
Arrangement of sectional stands	20	20	17
Effective ticketing	10	10	10
General finish	20	19	17
	80	77	71
Grand Total	1,558	1,222	1,166½

PRIMARY PRODUCTS ONLY.

In the primary products only competition the contest was particularly keen, and the final result was a triumph for the Northern Darling Downs, with a grand total of 854 points. The Kilcoy district was second with a grand total of 829 points. The contest for third place was very close, Gympie securing the honour with 774 points, and Kingaroy fourth with 772 points. Nanango did well, and secured a grand total of 744½ points. In allowing the incomplete exhibit from Mundubbera to take its place in the competition, the Council paid tribute to the courage of those responsible for getting what was shown together, and it was indeed unfortunate that the rest of the exhibit was not produced. However, the exhibit secured 317 points, and will participate in the prize money. In one section—wool, &c.—Northern Darling Downs only dropped two points, securing a total for wool, &c., of 108 out of a possible 110. That exhibit also scored heavily for wheat, and perhaps the most interesting section was dairy produce; and here Gympie and Nanango were

equal, each with 152. Northern Darling Downs were next with 151. Then followed Kilcoy with 150, and Kingaroy 148—a very close contest. Appended are the awards:—

PRIMARY PRODUCTS ONLY—*continued.*

	Possible Points.	Mundubbera.	Clyde.	Kilcoy.	Kingaroy.	Nanango.	Northern Darling Downs.
(1) DAIRY PRODUCE—							
Butter, 1 box, 56 lb.	90	..	86	84	86	87	88
Cheese, not less than 1 cwt. ..	60	..	54	51	50	52	53
Eggs, suitable for domestic use; 1 doz. of each variety ..	20	6	12	15	12	13	10
	170	6	152	150	148	152	151
(2) FOODS—							
Hams, bacon, rolled and smoked beef and mutton	50	..	15	20	25	27	24
Fish (smoked)	10	..	4	2	..	..	4
Lard, tallow, and animal oils..	20	1	9	10	10	12	9
Honey and its by-products ..	20	5	9	16	8	7	14
Confectionery (home-made) ..	10	5	10	9	9	7	10
Biscuits, bread, cakes, and scones (home-made) ..	10	3	8	8	7	8	5
	120	14	55	65	57	61	66
(3) FRUITS, VEGETABLES, AND ROOTS—FRESH AND PRESERVED—							
Fresh fruits—all kinds ..	60	12	42	45	18	20	22
Preserved fruit and jams, &c., prepared by farmer ..	20	2	15	20	10	18	10
Dried fruit, prepared by farmer	5	..	3	4	3	4	3
Fresh vegetables—all kinds, including table pumpkins, but excluding potatoes	25	8	16	12	6	10	10
Preserved and dried vegetables, pickles, sauces, &c. ..	10	..	7	9	5	8	7
Potatoes, English and sweet ..	40	16	38	35	22	32	20
Roots—all kinds—and their products, arrowroot, cassava meal, &c.; samples not less than 1 lb.	14	10	12	12	7	8	6
Cocoanuts, peanuts, and other nuts	6	..	5	4	5	5	2
Vegetable seeds	10	3	7	5	7	8	6
	190	51	145	146	83	113	86
(4) GRAIN, &C.—							
Wheat	50	..	5	5	20	30	40
Flour, bran, pollard, macaroni, and meals prepared therefrom	10	..	1	1	1	6	7½
Maize	50	20	43	43	46	44	38
Maizena, meals, starch, glucose, and cornflour	10	2	8	5	6	6	1
Oats, rye, rice, barley, malt, pearl barley, and their meals	30	2	4	22	20	20	27
	150	24	61	76	93	106	113½

PRIMARY PRODUCTS ONLY—*continued.*

	Possible Points.	Mundubbera.	Gympie.	Kilcoy.	Kingaroy.	Nanango.	Northern Darling Downs.
(5) WOODS—							
Dressed, undressed, and polished; one face to be dressed, and half of it polished; back to be rough; samples to measure not less than 12 x 6 x 1 inch thick	25	12	21	23	19	18	21
Wattle bark	15	12	10	11	12	11	12
	40	24	31	34	31	29	33
(6) HIDES (1) AND HOME-PRESERVED SKINS FOR DOMESTIC USE—							
Must be free from offensive smell	15	3	4	10	11	10	13
(7) TROPICAL PRODUCTS —							
Sugar-cane	60	5	40	15	4	3	2
Coffee, tea, and spices ..	10	..	9	5	6	..	8
Cotton (raw) and by-products	30	15	18	24	15	24	26
	100	20	67	44	25	27	36
(8) MINERALS—							
Gold, silver, copper, and precious stones	25	7	16	12	11	12	11
Coal, iron, and other minerals, and salt	30	5	9	7	12	7	16
	55	12	25	19	22	19	27
(9) TOBACCO —							
Tobacco (cigar and pipe) in leaf	20	10	..	10	12	..	18
(10) HAY, CHAFF, &C.—							
Lucerne, oaten, wheaten, and and other hay	30	6	6	21	21	9	22
Grasses and their seeds ..	10	4	$5\frac{1}{2}$	6	7	$5\frac{1}{2}$	4
Oaten, wheaten, lucerne, and other chaffs	50	15	21	20	36	30	42
Ensilage and other prepared cattle fodder	20	4	4	1	1	9	12
Sorghums and millets, in stalk	10	3	7	8	8	8	$8\frac{1}{2}$
Commercial fibres	10	3	8	2	5	..	5
Pumpkins and other green fodder	10	5	$8\frac{1}{2}$	8	7	7	7
Hemp and flax	10	..	5	2	4	1	4
Broom millet, ready for manufacture	10	..	6	4	8	9	8
Farm seeds, including canary seeds	13	5	6	8	8	9	6
	173	45	77	88	105	$87\frac{1}{2}$	$118\frac{1}{2}$

PRIMARY PRODUCTS ONLY—*continued.*

—	Possible Points.	Mundubbera.	Gympie.	Kilcoy.	Kingaroy.	Nanango.	Northern Darling Downs.
(11) WOOL, &c.—							
Scoured wool	40	35	..	32	35	..	39
Greasy wool	60	44	48	40	52	49	59
Mohair	10	8	8	6	7	9	10
	110	87	57	78	94	58	108
(12) ENLARGED PHOTOGRAPHS—							
A maximum of 5 points will be awarded for enlarged photographs of district scenery and local-bred live stock ..	5	..	5	2	2	2	2
(13) LADIES AND SCHOOLS' WORK AND FINE ARTS—							
Needlework, knitting	25	..	18	25	20	14	14
School needlework, by pupils of schools in the district ..	5	..	3	5	4	2	2
Fine arts	5	..	3	1	5	2	4
School work, maps, writing, &c., by pupils of schools in the district	10	4	1	8	6	7	6
	45	4	25	39	35	25	26
(14) EFFECTIVE ARRANGEMENT—							
Comprehensiveness of view ..	30	10	29	28	22	24	22
Arrangement of sectional stands	20	4	15	19	10	12	10
Effective ticketing	10	1	9	10	8	7	7
General finish	20	2	18	19	14	12	17
	80	17	71	76	54	55	56
Grand Total	1,273	317	774	829	772	744½	854

ONE-FARM COMPETITION.

In the One Farm Exhibits, K. Haag (Teviotville) won with 471½ points, A. Lofgren (Coalfields, Ipswich) was second with 452½, and L. Christensen (Pierce's Creek, Crow's Nest) third with 404½ points. The other three also gained good points. Details:—

COLLECTION OF FARM PRODUCE, FOODS FOR CONSUMPTION, &c.

—	Possible Points.	W. Brumpton (Amby).	L. Christensen (Crow's Nest).	K. Haag (Teviotville).	W. Horswood (Chinchilla).	G. C. Klumpp (Mt. Gravatt).	A. Lofgren (Ipswich).
(1) DAIRY PRODUCE—							
Butter, 6 lb.	25	21	20	23	20	23	20
Cheese, 1 large or 2 small, home-made	20	16	2	17	19	13	17
Eggs, suitable for domestic use; 1 doz. each variety	5	3	3	3	3½	3	4
	50	40	32	42	42½	39	42
(2) FOODS—							
Hams (15 lb.), bacon (15 lb.), home cured	20	15	14	18	13	8	10
Corned, smoked, and spiced beef and mutton, 10 lb.	10	8	6	6	5	6	4
Honey, 12 lb.	10	6	6	8	5	8	9
Beeswax, 6 lb.	10	4	3	3	3	5	4
Bread, 2 loaves; scones, 1 doz.	5	5	4	5	4	5	5
Confectionery and sweets, 3 lb.	5	5	4	5	5	5	5
Cakes and biscuits	5	3	4	5	4	4	5
Lard, tallow, animal oils	5	3	4	4	4	4	4
	65	49	45	54	43	45	46
(3) FRUITS, VEGETABLES, AND ROOTS—FRESH AND PRESERVED—							
Fresh fruits—all kinds	25	2	6	14	8	12	22
Dried fruits	10	8	2	9	8	8	2
Preserved fruits and jams	15	12	10	3	10	12	12
Fresh vegetables	15	8	5	11	8	12	14
Pickles, sauces, &c.	15	12	9	14	9	12	11
Potatoes, not less than 28 lb. (or collection), and roots	25	16	24	23	10	21	22
Table pumpkins, squashes, and marrows, 56 lb.	10	7	7	9½	6	5	9
Cocoanuts and nuts	3	2	2	2	2	2	2
Vegetable and garden seeds	5	3½	4	4	3	3	3
Arrowroot, 10 lb.	5	2	4	3	2	4	3
Sugar beet, 3 lb.	5	3	1	3	..	2	3
Cassava, 3 lb.	5	..	..	3	..	2½	3
Ginger, 3 lb.	5	..	3	..	..	4	4
	143	75½	77	108½	66	99½	107

ONE-FARM COMPETITION —*continued.*

	Possible Points.	W. Brumpton (Amby).	L. Christensen (Crow's Nest).	K. Haag (Teviotville).	W. Petersen (Oakhilla).	[illegible]	A. [illegible]
(4) GRAIN, &c.—							
Wheat	25	20	17	14	12	16	12
Maize	25	9	20	22	15	12	17
Barley, oats, rye, and rice	20	8	15	15	7	8	16
	70	37	52	51	34	36	45
(5) TROPICAL PRODUCTS—							
Sugar-cane, 24 stalks, or 1 stool	30	..	12	16	..	18	24
Cotton in seed, 10 lb., long staple	10	6	8	6	8	5	6
Coffee, 10 lb.	5	..	4	..	..	4	4
	45	6	24	22	8	27	34
(6) TOBACCO—							
Tobacco-leaf, dried, 5 lb.	10	8	8	..	..	8	5
(7) HAY, CHAFF, &c.—							
Hay—oaten, wheaten, lucerne, and other varieties	20	14	12	18	12	10	16
Grasses and their seeds, including canary	10	5	7	8	6	6	7
Chaff—oaten, wheaten, lucerne, and other varieties	20	11	16	18	14	15	15
Ensilage, any form	15	5	10	13	8	2	12
Cattle fodder (pumpkins and green fodder)	15	8	10	11	10	8	11
Sorghum and millet, in stalk	10	7	6	7	7	6	6
Broom millet, 10 lb.	10	8	9	7	8	6	6
Cowpea seed, 7 lb.	7	4	6	5	3	2	4
Flax, 3 lb.	5	..	4	3	..	0½	3
Hemp, 5 lb.	5	..	4	4	..	3	3
	117	62	84	94	68	58½	83
(8) WOOL—							
Greasy, 5 fleeces	20	20	15	16	15	..	17
Mohair	5	..	4	4	3	..	5
	25	20	19	20	18	..	22
(9) DRINKS, &c.—							
Temperance drinks, 6 bottles	10	5	3	8	4	5	5
(10) WOMEN'S AND CHILDREN'S WORK—							
Needlework, knitting	10	9	7	7	7	10	5
Fine arts	5	..	2	3	..	2	3
Fancy work	15	12	13	14	10	15	12
School work, maps, writing, &c.	5	1	2	..	4	3	..
School needlework	5	..	..	..	3	2	2
	40	22	24	24	24	32	22

ONE-FARM COMPETITION—*continued.*

	Possible Points.	W. Brumpton (Amby).	L. Christensen (Crow's Nest).	K. Haag (Teviotville).	W. Horswood (Chinchilla).	G. C. Klumpp (Mt. Gravatt).	A. Iofgren (Ipswich).
(11) Miscellanous Articles of Commerical Value ..	5	4	4	4	4	3	2½
(12) Plants and Flowers in Pots	5	1	..	5	2	3	2½
(13) Time and Labour Saving Useful Articles Made on the Farm	10	4	7	5	5	4	3½
(14) Effective Arrangement of Exhibits—							
Comprehensiveness of view ..	10	7	9	10	9	8	10
Arrangement of stands ..	10	7	6	9	6	7	10
Effective ticketing	5	4	3½	5	4½	4½	4
General finish	10	6	7	10	9	7	10
	35	24	25½	34	28½	26½	34
Grand Total	630	357½	404½	471½	347	386½	452½

FARM PRODUCE.

Cereals.

(Judges, Messrs. H. C. Quodling and C. McKeon.)

Maize, shelled, large yellow, Hawkesbury Champion or Golden King: H. Franke 1, J. T. Biggs 2, H. Dippel 3. Improved Yellow Dent: H. Franke 1, C. Behrendorff 2, W. Neal, jun., 3. Horse Tooth: J. A. Nystrom 1, A. Franke 2. Yellow Dent, any other variety: W. Neal, jun., 1, J. A. Nystrom 2, T. Fisher 3. Medium yellow, Golden Beauty: K. Haag 1, J. Davis 2, T. Fisher 3. Yellow Dent: H. Franke 1, R. V. McLuskie 2. Yellow Peg, tooth type: H. Dippel 1, H. Franke 2 and 3. Small yellow, Early Leaming: M. Ryan 1, A. J. Mogridge 2, H. Franke 3. Reid's, Funk's, or James's Yellow Dent: H. Franke. Early Yellow Dent: C. S. Huxley 1, H. Franke 2, K. Haag 3. So-called 90 Day, small yellow dent: M. Ryan 1, H. Franke 2. Small yellow flint: T. Fisher 1, H. Franke 2 and 3. White varieties.—Large white, except Hickory King: W. Neal, jun., 1, H. Dippel 2. Hickory King: A. Dippel 1, J. T. Biggs 2. Boone County, white: A. Loweke 1, H. Franke 2, H. Dippel 3. Brazilian white: C. E. Behrendorff. Red varieties.—Red Hogan: H. Dippel 1, C. Behrendorff 2, H. Franke 3. Sydney Red: H. Franke 1, J. T. Biggs 2. Red butcher or other distinct red type: A. Dippel. Small early red: H. Franke 1, J. A. Nystrom 2, J. Donges 3. Sweet and pop corn.—Sweet corn: H. Franke. Pop corn: E. Dearling 1, H. Franke 2, H. Dippel 3. Maize ears.—Large yellow: W. Neal, jun., 1, W. Sharler 2, J. P. Mooney 3. Medium yellow: R. V. McLuskie 1, H. Franke 2, K. Haag 3. Any other white variety: J. T. Biggs 1, C. Behrendorff 2. Red: H. Dippel 1, A. Dippel 2. Red, small grain: J. T. Biggs 1, J. A. Nystrom 2. Sweet corn: H. Franke. Pop corn: H. Franke 1, E. Dearling 2. Wheat.—Medium strong flour: J. C. Jensen 1 and 2. Oats and

rye.—Algerian or Sunrise Oats: J. Berney 1, K. Haag 2. Rye: J. Berney. Hay.—Lucerne, best dry: J. Campbell 1, C. Behrendorff 2. Soudan grass: H. Franke. Millet or panicum: H. Franke. Algerian oaten: F. W. Sprenger 1, H. W. Berlin, 2. Tartarian oaten: H. W. Berlin 1 and 2. Wheaten: J. Logan 1, H. W. Berlin 2. Chaff—Lucerne: F. W. Sprenger 1, H. W. Berlin 2. Oaten: K. Haag 1, F. W. Sprenger 2. Wheaten: S. Hando 1, H. W. Berlin 2. Mixed, oaten and lucerne: O. C. Granzien, sen., 1, F. W. Sprenger 2. Wheaten and lucerne: H. W. Berlin 1, J. W. Campbell 2. Panicum and lucerne: J. Campbell 1, H. W. Berlin 2. Any other mixture: H. W. Berlin 1, J. Campbell 2. Soudan grass: H. Franke 1, O. C. Granzien, sen., 2. Millet or panicum: H. W. Berlin 1 and 2. Grass hay: H. W. Berlin 1, H. Franke 2. Wheaten straw: K. Haag 1, J. Donges 2. Oaten straw: J. Donges. Straw: J. Campbell 1, H. W. Berlin 2. Ensilage.—Whole stalked: Miss Caswell 1, M. Porter and Sons 2.

AGRICULTURAL AND MARKET GARDEN SEEDS.

Cream standard, or dwarf milo: H. Dippel. Red Kaffir corn: E. Dearling 1, H. Franke 2. Sorghum: H. Franke. Saccaline: H. W. Berlin 1, H. Franke 2. Planter's Friend: H. Dippel 1, C. Behrendorff 2. Amber cane: K. Haag 1, H. Franke 2. Broom millet.—Seed, 30 lb.: H. Franke. Prime hurl: H. Franke. Panicum and fodder millets.—Liberty: K. Haag 1, J. Logan 2. Japanese: K. Haag 1, H. W. Berlin 2. White panicum: H. W. Berlin. Pasture grass seeds.—Prairie grass: E. Dearling 1, H W Berlin 2. Beans and peas.—Canadian Wonder: A. J. Mogridge. Haricot: A. Wyllie. Lima: A. Wyllie. Cow-peas, clay coloured: T Fisher 1, K. Haag 2. Any other variety: K. Haag. Miscellaneous.—Peanuts, large podded: K. Haag 1, H. Franke 2. Small podded: W. Neal, jun., 1, K. Haag 2. Giant Russian sunflower: C. S. Huxley. White-seeded French: K. Haag.

ROOTS AND VEGETABLES.

Potatoes.—Guyra Blue: E. Pickering 1, H. Franke 2. Manhattan: J. T. Biggs. Brownell, any other variety than Satisfaction: H. Franke 1 and 2. Satisfaction: H. Franke 1 and 2. White Carmen: T. A. Flood 1, J. Sinnamon 2, J. T. Biggs 3. Scottish Triumph: G. W. Armstrong. Up-to-date: J. T. Biggs 1, H. Franke 2. Collection of English varieties: H. Franke 1, J. T. Biggs 2. Other roots and vegetables.—Pumpkins, Crown: J. Logan 1, J. Campbell 2. Ironbark: J. Logan 1, J. T. Biggs 2. Silver Nugget: J. Logan 1, H. W. Berlin 2. Triamble: J. Logan 1, H. W. Berlin 2. Button: H. W Berlin 1, J Logan 2. Cattle: J. T. Biggs. Melons.—Pie: J. Seeleither. Arrowroot: J. C. Seeleither. Mangold wurzel.—Long red: H. W. Berlin 1 and 2. Globe, red: H. W. Berlin 1, H. Franke 2. Long yellow: H. W. Berlin 1, H. Franke 2. Globe yellow: H. W. Berlin 1 and 2. Swedes.—Purple top: A. Loweke.

CHAMPIONS.

Maize, shelled: M. Ryan. Reserve champion: K. Haag. Maize, ears: W. Neal, jun. Grand Champion, wheat: J. Berney, W. Geitz Bros., in second and third places. Blue potato: J. T. Biggs. Brownell: H. Franke. White potato: T. A. Flood.

TROPICAL PRODUCTS.

(Judge, Mr. H. T. Easterby.)

Sugar-cane, 16 months and under, grown in red soil: R. Williamson 1 and 2. Other than red soil: H. Meirs 1, W. G. Cocking 2. Standover, five canes, with tops: H. Miers. Collection: H. Miers 1, B. Leach 2. One stool, 16 months and under: H. Miers. Standover, one stool: H. Miers. Highest C.C.S., six canes, with tops: R. Williamson 2. Badila cane, over 18 months: H. Miers. Sugar cane, D. 1135: H. Miers. 1900 seedlings: B. Leach 1, R. Williamson 2. Any other milling variety: H. Miers. Any variety of Queensland or Hambledon seedlings: W. J. Parker 1, A. W. Macpherson 2.

BUTTER FOR EXPORT.

Export butter 30 days' storage, salted. One box, 56 lb., suitable for export.

—	Flavour.	Texture.	Colour	Salting.	Packing.	Total.
Possible points	65	20	7	4	4	100
Nanango Co-operative Dairy Co., Ltd. ..	60	20	7	4	4	95
Queensland Farmers' Co-operative Co., Ltd., Grantham	60	20	6¾	4	4	94¾
Caboolture Co-operative Dairy Co., Ltd...	59	20	7	4	4	94
Oakey District Co-operative Butter Co., Ltd.	59	20	6¾	4	4	93¾
Maryborough Co-operative Dairy Co., Ltd., Kingaroy	59	19¾	7	4	3¾	93½
Queensland Farmers' Co-operative Co., Ltd., Laidley	57	20	7	4	4	92
Downs Co-operative Dairy Co., Ltd., Clifton	58	19¾	6¼	4	3¾	91¾
Caboolture Co-operative Dairy Co., Ltd., Eumundi	57	19¾	6½	4	4	91½
Warwick Butter and Dairy Co., Ltd., Texas	56½	20	7	4	3¾	91¼
Esk Co-operative Dairy Co., Ltd. ..	56½	20	6½	4	4	91
Warwick Butter and Dairy Co., Ltd., Goondiwindi	56	20	7	4	4	91
Caboolture Co-operative Dairy Co., Ltd., Pomona	56	19¾	7	4	4	90¾
Maryborough Co-operative Dairy Co., Ltd., Mundubbera	56½	19¾	6	4	3¾	90
Terror's Creek and Samsonvale Co-operative Dairy Co., Ltd., Dayboro'	56½	19¼	6½	4	3¾	90
Warwick Butter and Dairy Co., Ltd., Allora	56½	19¼	6½	4	3¾	89½
Downs Co-operative Dairy Co., Ltd., Crow's Nest	56	19¼	6½	4	3½	89¼

Export butter, 8 weeks' storage, unsalted. One box 56 lb., suitable for export.

—	Flavour.	Texture.	Colour.	Packing.	5 points additional.	Total.
Possible points	65	20	7	4	5	101
Oakey District Co-operative Butter Co., Ltd.	60	20	7	4	5	96
Queensland Farmers' Co-operative Co., Ltd., Boonah	59½	20	7	4	5	95½
Warwick Butter and Dairy Co., Ltd., Allora	59	20	7	4	5	95
Caboolture Co-operative Dairy Co., Ltd...	59	20	6¾	4	5	94¾
Warwick Butter and Dairy Co., Ltd., Texas	58½	20	7	4	5	94½
Maryborough Co-operative Dairy Co., Ltd., Kingaroy	58¾	20	6¾	4	5	94½
Warwick Butter and Dairy Co., Ltd., Goondiwindi	58½	20	6¾	4	5	94¼
Queensland Farmers' Co-operative Co., Ltd., Grantham	58	20	7	4	5	94
Queensland Farmers' Co-operative Co., Ltd., Laidley	58	20	7	4	5	94

BUTTER FOR EXPORT—*continued.*

Export butter, 8 weeks' storage, unsalted. One box 56 lb., suitable for export—*contd.*

	Flavour.	Texture.	Colour.	Packing.	5 points additional.	Total.
Possible points	65	20	7	4	5	101
Esk Co-operative Dairy Co., Ltd. ..	58	20	6¾	4	5	93¾
Logan and Albert Co-operative Dairy Co., Ltd., Beaudesert	58½	20	6½	3¾	5	93¾
Nanango Co-operative Dairy Co., Ltd. ..	58	20	6½	4	5	93½
Terror's Creek and Samsonvale Co-operative Dairy Co., Ltd., Dayboro'	58	19¾	6¾	4	5	93½
Downs Co-operative Dairy Co., Ltd., Toowoomba	57	20	7	4	5	93
Queensland Farmers' Co-operative Co., Ltd., Booval	57	20	7	4	5	93
Maryborough Co-operative Dairy Co., Ltd., Biggenden	57	20	7	3½	5	92½
Downs Co-operative Dairy Co., Ltd., Crow's Nest	57	19¾	6¼	4	5	92
Maryborough Co-operative Dairy Co., Ltd., Maryborough	56½	20	6¼	4	5	91¾
Downs Co-operative Dairy Co., Ltd., Clifton	56½	19¾	6¼	4	5	91½
Gayndah Co-operative Dairy Co., Ltd. ..	55½	20	6¾	4	5	91¼
Maryborough Co-operative Dairy Co., Ltd., Mundubbera	54	20	6¾	4	5	89¾

Export butter, 8 weeks' storage, salted. One box 56 lb., suitable for export. No preservative other than salt permitted in manufacture.

	Flavour.	Texture.	Colour.	Salting.	Packing.	Total.
Possible points	65	20	7	4	4	100
Queensland Farmers' Co-operative Co., Ltd., Grantham	60½	20	7	4	4	95½
Nanango Co-operative Dairy Co., Ltd. ..	61	19½	6½	4	4	95
Queensland Farmers' Co-operative Co., Ltd., Booval	59½	20	7	4	4	94½
Warwick Butter and Dairy Co., Ltd., Goondiwindi	57	20	6¾	4	3½	94¼
Oakey District Co-operative Butter Co., Ltd.	59	20	7	4	4	94
Queensland Farmers' Co-operative Co., Ltd., Boonah	59	20	7	4	4	94
Maryborough Co-operative Dairy Co., Ltd., Mundubbera	59	20	6¾	4	4	93¾
Gayndah Co-operative Dairy Co., Ltd. ..	58½	20	6¾	4	4	93¼
Maryborough Co-operative Dairy Co., Ltd., Maryborough	58	20	6½	4	4	92½
Esk Co-operative Dairy Co., Ltd. ..	57	20	7	4	4	92
Maryborough Co-operative Dairy Co., Ltd., Biggenden	58	19½	6½	4	4	92

BUTTER FOR EXPORT—*continued.*

Export Butter, 8 weeks' storage, salted. One box, 56 lb., suitable for export. No preservative either than salt permitted in manufacture—*continued.*

—	Flavour.	Texture.	Colour.	Salting.	Packing.	Total.
Queensland Farmers' Co-operative Co., Ltd., Laidley	57	20	7	4	4	92
Caboolture Co-operative Dairy Co., Ltd.	57	19¾	6¾	4	4	91½
Warwick Butter and Dairy Co., Ltd., Texas	58	19¾	6½	3½	3¾	91¼
Downs Co-operative Dairy Co., Ltd., Clifton	56	19¾	6½	4	4	90½
Downs Co-operative Dairy Co., Ltd., Toowoomba	56½	19¾	6	4	4	90¼
Downs Co-operative Dairy Co., Ltd., Crow's Nest	55	20	7	4	4	90
Logan and Albert Co-operative Dairy Co., Ltd., Beaudesert	56	19¾	6¼	4	4	90
Warwick Butter and Dairy Co., Ltd., Allora	56	19¾	6½	3½	3¾	89½
Terror's Creek and Samsonvale Co-operative Dairy Co., Ltd., Dayboro	56	19½	6½	3¾	3½	89¼

Export butter, eight weeks' storage, salted. One box, 56lb., manufactured in Queensland from pasteurised cream, suitable for table use in Britain.

—	Flavour.	Texture.	Colour.	Salting.	Packing.	Total.
Possible points	65	20	7	4	4	100
Oakey District Co-operative Butter Co., Ltd.	61	20	7	4	4	96
Nanango Co-operative Dairy Co., Ltd.	61	20	6½	4	4	95½
Maryborough Co-operative Dairy Co., Ltd., Mundubbera	60	20	7	4	4	95
Esk Co-operative Dairy Co., Ltd.	59½	20	7	4	4	94½
Queensland Farmers' Co-operative Co., Ltd., Grantham	60	20	6½	4	4	94½
Logan and Albert Co-operative Dairy Co., Ltd., Beaudesert	60	19¾	6½	4	4	94¼
Maryborough Co-operative Dairy Co., Ltd., Biggenden	60	19¾	6¼	4	3¾	94¼
Gayndah Co-operative Dairy Co., Ltd.	59½	20	6¾	4	3¾	94
Maryborough Co-operative Dairy Co., Ltd., Kingaroy	59½	20	6¾	3¾	4	94
Queensland Farmers' Co-operative Co., Ltd., Laidley	59½	20	7	3½	4	94
Queensland Farmers' Co-operative Co., Ltd., Booval	59	20	7	3¾	4	93¾
Caboolture Co-operative Dairy Co., Ltd.	59	20	7	3½	4	93½
Downs Co-operative Dairy Co., Ltd., Dalby	59	20	7	3½	4	93½
Queensland Farmers' Co-operative Co., Ltd., Boonah	59	20	7	3½	4	93½
Maryborough Co-operative Dairy Co., Ltd., Maryborough	59	20	6½	4	3¾	93¼
Downs Co-operative Dairy Co., Ltd., Clifton	58½	20	6½	4	4	93
Warwick Butter and Dairy Co., Ltd., Goondiwindi	58	20	7	4	4	93
Warwick Butter and Dairy Co., Ltd., Texas	58	20	7	4	4	93

BUTTER FOR EXPORT—*continued.*

	Flavour.	Texture.	Colour.	Salting.	Packing.	Total.
Possible points	65	20	7	4	4	100
Warwick Butter and Dairy Co., Ltd., Allora	56½	20	7	4	4	91½
Downs Co-operative Dairy Co., Ltd., Toowoomba	57	19½	6½	3¾	4	90¾
Terror's Creek and Samsonvale Co-operative Dairy Co., Ltd., Dayboro'	56½	19½	6½	3½	4	90

BUTTER AWARDS.

FRESH BUTTER FOR LOCAL CONSUMPTION. ONE BOX, 56 LB., FACTORY MADE.

	Flavour.	Texture.	Colour.	Salting.	Packing.	Total.
Possible points	65	20	7	4	4	100
Oakey District Co-operative Butter Co., Ltd.	61	20	7	4	3¾	95¾
Queensland Farmers' Co-operative Co., Ltd., Laidley	60½	20	6¾	4	4	95¼
Caboolture Co-operative Dairy Co., Ltd.	60	20	7	4	4	95
Nanango Co-operative Dairy Co., Ltd. ..	60	20	6½	4	4	94½
Queensland Farmers' Co-operative Co., Ltd., Boonah	59½	20	7	4	4	94½
Wide Bay Co-operative Dairy Co., Ltd., Cooroy	59½	20	7	4	4	94½
Gayndah Co-operative Dairy Co., Ltd. ..	59½	20	6½	4	4	94
Queensland Farmers' Co-operative Co., Ltd., Booval	59	20	7	4	4	94
Queensland Farmers' Co-operative Co., Ltd., Grantham	59	20	6¾	4	4	93¾
Maryborough Co-operative Dairy Co., Ltd., Maryborough	59½	20	6½	4	2½	93½
Warwick Butter and Dairy Co., Ltd., Goondiwindi	59	19½	7	4	4	93½
Caboolture Co-operative Dairy Co., Eumundi	58½	20	6¾	4	4	93¼
Downs Co-operative Dairy Co., Ltd., Crow's Nest	58½	19½	7	4	4	93
Warwick Butter and Dairy Co., Ltd., Texas	59	19½	7	4	3½	93
Queensland Agricultural High School and College	58	20	6¾	4	4	92¾
Logan and Albert Co-operative Dairy Co., Ltd., Beaudesert	58½	19¾	6½	4	3½	92¼
Maryborough Co-operative Dairy Co., Ltd., Biggenden	58½	19¾	6½	4	3½	92¼
Caboolture Co-operative Dairy Co., Ltd., Pomona	58	19½	6½	4	4	92
Warwick Butter and Dairy Co., Ltd., Allora	58½	19½	6¾	4	3¾	92
Esk Co-operative Dairy Co., Ltd. ..	57	19¼	6¾	4	4	91
Maryborough Co-operative Dairy Co., Ltd., Kingaroy	58	19¼	6½	3¾	3½	91
Downs Co-operative Dairy Co., Ltd., Clifton	57	19½	6½	4	3½	90½
Maryborough Co-operative Dairy Co., Ltd., Mundubbera	57	19½	6¼	4	3¾	90½
Terror's Creek and Samsonvale Co-operative Dairy Co., Ltd., Dayboro' ..	56½	19¼	6½	4	3½	89¾

BUTTER AWARDS—*continued.*

AGGREGATE SPECIAL FOR FACTORY SECURING THE GREATEST NUMBER OF POINTS IN ALL CLASSES FOR BUTTER.

—	Thirty Days' Storage (Salted).	Eight Weeks' Storage (Unsalted).	Eight Weeks' Storage (Salted, No Preservative).	Eight Weeks' Storage (Salted, Pasteurised Cream).	Fresh.	Grand Aggregate.
Oakey District Co-operative Dairy Co., Ltd.	93¾	96	94	96	95¾	475½
Nanango Co-operative Dairy Co., Ltd.	95	93½	95	95½	94½	469½
Caboolture Co-operative Dairy Co., Ltd.	94	94¾	91½	93½	95	468¾
Queensland Farmers' Co-operative Co., Ltd., Grantham	94¾	94	95½	94½	93¾	468½
Queensland Farmers' Co-operative Co., Ltd., Booval	93	93	94½	93¾	94	468¼
Others—						
Downs Co-operatve Dairy Co., Ltd., Clifton	91¼	91½	90½	93	90½	456¾
Esk Co-operative Dairy Co., Ltd.	91	93¾	92	94½	91	462½
Logan and Albert Co-operative Dairy Co., Ltd., Beaudesert	92¼	93¾	90	94¼	92¼	462½
Maryborough Co-operative Dairy Co., Ltd., Mundubbera	90	89¾	93¾	95	90½	459
Queensland Farmers' Co-operative Co., Ltd., Boonah	91½	95½	94	93½	94½	466
Queensland Farmers' Co-operative Co., Ltd., Laidley	92	94	92	94	95¼	467¼
Warwick Butter and Dairy Co., Ltd., Allora	89½	95	89½	91½	92	457½
Warwick Butter and Dairy Co., Ltd., Goondiwindi	91	94¼	94¼	93	93½	466
Warwick Butter and Dairy Co., Ltd., Texas	91¼	94½	91½	93	93	463¼
Terror's Creek and Samsonvale Co-operative Dairy Co., Ltd., Dayboro'	90	93½	89¼	90	89¾	452½

CHEESE AWARDS.

Export cheese, white, pasteurised, suitable for English market; two, each 70 to 80 lb., stored for six weeks.

—	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Pittsworth Dairy Co., Ltd., No. 1 Factory	47	25	14½	10	96½
Mount Tyson Co-operative Dairy Co., Ltd.	46	25	15	9½	95½
Biddeston Co-operative Dairy Co., Ltd.	44	24½	15	9½	93
Malling Co-operative Cheese Society, Ltd., Maclagan	44	24½	14½	9½	92½
Southbrook Co-operative Dairy Co., Ltd.	44	24½	14½	9	92
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	44	24	14½	9	92

CHEESE AWARDS—*continued.*

Export cheese, white, unpasteurised; suitable for the English market; two, each 70 to 80 lb., stored for six weeks.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	46½	24¾	14¾	10	96
Pittsworth Dairy Co., Ltd., No. 5 Factory ..	46	24½	14¾	10	95¼
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	46	24½	14¾	9¾	95
Malling Co-operative Cheese Society, Ltd., Maclagan	45	24½	14¾	9	93¼
Downs Co-operative Dairy Co., Ltd., Westbrook	44½	24½	14½	9½	93
Mount Tyson Farmers' Co-operative Dairy, Ltd.	42	24½	15	9½	91
Biddeston Co-operative Dairy Co., Ltd.	41½	24½	14½	9½	90½
Rodger's Creek Cheese Factory	41	24	14	9½	88½
Downs Co-operative Dairy Co., Ltd., Jondaryan	39	24½	15	9½	88
Downs Co-operative Dairy Co., Ltd., Gowrie Junction	40	24	14	9½	87½
Gayndah Dairy Co., Ltd., Byrnestown	38	23½	14½	8½	84½

Export cheese, coloured, pasteurised; suitable for the English market; two, each 70 to 80 lb., stored for six weeks.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	46½	24½	14¾	10	95¾
Cooranga North Co-operative Dairy Co., Ltd. ..	45½	25	15	9¾	95¼
Malling Co-operative Cheese Co., Ltd., Maclagan	46	24½	14¾	9½	94¾
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	45	24½	15	10	94½
Pittsworth Dairy Co., Ltd., No. 2 Factory ..	46	24½	14½	9½	94½
Biddeston Co-operative Dairy Co., Ltd.	45	24½	14½	9¾	93¾
Southbrook Co-operative Dairy Co., Ltd. ..	43	25	14	9	91
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	42	24½	14½	9½	90½

Export cheese, coloured, unpasteurised; suitable for the English market; two, each 70 to 80 lb., stored for six weeks.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Pittsworth Diary Co., Ltd., No. 4 Factory ..	46	24¾	14¾	9¾	95¼
Downs Co-operative Dairy Co., Ltd., Westbrook	45½	24¾	14¾	9½	94½
Downs Co-operative Dairy Co., Ltd., Koondai ..	45	24¾	14¾	9½	91
Malling Co-operative Cheese Society, Ltd., Maclagan	41	24½	14¾	9¼	92½
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	44	24½	15	9	92½
Biddeston Co-operative Dairy Co., Ltd.	42	24½	14½	9½	90½

CHEESE AWARDS—*continued.*

Export Cheese, coloured, unpasteurised; suitable for the English market; two each 70 to 80 lb.; stored for six weeks—*continued.*

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Cooranga North Co-operative Dairy Co., Ltd. ..	41½	24½	14¾	9¼	90
Pittsworth Dairy Co., Ltd., No. 3. Factory ..	41½	24½	14½	9½	90
Downs Co-operative Dairy Co., Ltd., Gowrie Junction	40	24	14	9⅓	87⅓
Rodger's Creek Cheese Factory	39	24½	14½	9⅓	87⅓
Kooroongarra Co-operative Dairy Co., Ltd. ..	38	24¾	14¾	9½	86¾
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	38	24	14½	9¾	86¼
Downs Co-operative Dairy Co., Ltd., Jondaryan	39	24	13½	9½	86
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	38	24	14	9¼	85¼
Gayndah Co-operative Dairy Co., Ltd., Byrnestown	36	24	14	8½	82½

Medium cheese, over two months old, pasteurised; two, each not exceeding 40 lb.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Southbrook Co-operative Dairy Co., Ltd. ..	46	25	14½	9¼	94¾
Pittsworth Dairy Co., Ltd., No. 2 Factory ..	45½	25	14½	9½	94¼
Cooranga North Co-operative Dairy Co., Ltd. ..	45	25	15	9	94
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	45	24	15	9	93
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	44½	24½	14½	9½	93
Malling Co-operative Cheese Society, Ltd. ..	43½	25	15	9	92½
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	42	24½	14½	9¾	90¾

Medium cheese, over two months old, unpasteurised; two, each not exceeding 40 lb.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	46½	25	14¾	9¼	95½
Malling Co-operative Cheese Society, Maclagan ..	46	24¾	14¾	9½	95
Pittsworth Dairy Co., Ltd., No. 3 Factory ..	45	25	14¾	9¼	94
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	44	25	14¾	9	92¾
Cooranga North Co-operative Dairy Co., Ltd., Binjour	44	24¾	14¾	9	92½
Biddeston Co-operative Dairy Co., Ltd.	43½	24½	14½	9½	92
Oakey District Co-operative Butter Co., Ltd., Crosshill	42½	25	15	9¼	91¾
Oakey District Co-operative Butter Co., Ltd., Kelvinhaugh	42½	24½	14½	9½	91

CHEESE AWARDS—*continued.*

Medium cheese, over two months old, unpasteurised; two, each not exceeding 40 lb.—*continued.*

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Cooranga North Co-operative Dairy Co., Ltd. ..	41½	24¾	14½	9¼	90
Downs Co-operative Dairy Co., Ltd., Koondai ..	41½	24½	14½	9½	90
Pittsworth Diary Co., Ltd., No. 4 Factory ..	41	24¾	14¾	9½	90
Kooroongarra Co-operative Dairy Co., Ltd. ..	41	24¼	14¾	9	89
Warwick Butter and Dairy Co., Ltd., Greymare..	41	24¼	14½	9	88¾
Rodger's Creek Cheese Factory	41½	24	14½	8½	88½
Downs Co-operative Dairy Co., Ltd., Jondaryan	40	24½	14¼	9½	88¼
Nathan, Joseph, and Co., (Aust.) Ltd., Port Fairy, Victoria	40	24½	14	9½	88
Warwick Butter and Diary Co., Ltd., Talgai ..	40	24¼	14½	9	87¾
Downs Co-operative Dairy Co., Ltd., Hodgson's Vale	39	24¼	14½	9¼	87
Warwick Butter and Dairy Co., Ltd., Pratten ..	40	23½	13¾	9¼	86½

Medium cheese, under six weeks old; pasteurised; two, each not exceeding 40 lb.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Malling Co-operative Cheese Society, Ltd., Maclagan	46	24¾	14½	10	95¼
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	45½	25	14¾	9¾	95
Pittsworth Dairy Co., Ltd., No. 2 Factory ..	46	24½	14½	9¾	94¾
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	45	24½	14½	10	94
Southbrook Co-operative Dairy Co., Ltd. ..	45	25	14	9¼	93¼
Biddeston Co-operative Co., Ltd.	44	24½	14½	10	93
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	42½	24½	14½	10	91½
Cooranga North Co-operative Dairy Co., Ltd. ..	42½	24½	14½	9	90½

Medium cheese, under six weeks old, unpasteurised; two, each not exceeding 40 lb.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Pittsworth Dairy Co., Ltd., No. 3 Factory ..	46	24¾	14¾	8¾	94¼
Downs Co-operative Dairy Co., Ltd., Westbrook	45	24¾	14¾	9½	94
Malling Co-operative Cheese Society, Ltd., Maclagan	44	24¾	14¾	9½	93
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	43	24¾	14¾	9½	92
Downs Co-operative Dairy Co., Ltd., Koondai ..	43	24½	14¾	8¾	91
Yargullen Co-operative Dairy Co., Ltd.	43	24½	14½	9½	91
Biddeston Co-operative Dairy Co., Ltd.	41½	25	14½	9¾	90¾
Pittsworth Dairy Co., Ltd., No. 4 Factory ..	42	24¾	14¾	9¼	90¾
Warwick Butter and Dairy Co., Ltd., Pratten ..	42	24½	14½	9¼	90¼

CHEESE AWARDS—*continued.*

Medium cheese, under six weeks old, unpasteurised; two, each not exceeding 40 lb.—*continued.*

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Downs Co-operative Dairy Co., Ltd., Hodgson's Vale	41	24¾	14¾	9½	90
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	41	24¾	14¾	9½	90
Pittsworth Dairy Co., Ltd., No. 5 Factory ..	41	24¾	14¾	8½	90
Warwick Butter and Dairy Co., Ltd., Greymare ..	41½	24½	14½	9¼	89¾
Mount Sibley Co-operative Dairy Co., Ltd., Greenmount	41½	24½	14¾	9	89½
Warwick Butter and Dairy Co., Ltd., Talgai ..	41	24½	14½	9¼	89¼
Cooranga North Co-operative Dairy Co., Ltd. ..	41	24¼	14½	9¼	89
Oakey District Co-operative Butter Co., Ltd., Kelvinhaugh	40	24½	14½	9¼	88¼
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	40	24½	14	9½	88
Downs Co-operative Dairy Co., Ltd., Jondaryan	38	24½	14	9½	86½
Rodger's Creek Cheese Factory	38	24	14	8¾	84¾

Loaf cheese, over two months old, pasteurised; two, not exceeding 12 lb.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Biddeston Co-operative Dairy Co., Ltd.	46	25	14¾	10	95¾
Pittsworth Dairy Co., Ltd., No. 2 Factory ..	46	24¾	14¾	10	95½
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	45	25	14¾	10	94¾
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	45	25¾	14¾	10	94½
Southbrook Co-operative Dairy Co., Ltd. ..	44½	25	14¾	10	94¼
Malling Co-operative Cheese Society, Ltd., Maclagan	44½	25	15	9½	94
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	43	24¾	14½	10	92¼

Loaf cheese, over two months old, unpasteurised; two, not exceeding 12 lb.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	45	25	14¾	9½	94¼
Pittsworth Dairy Co., Ltd., No. 4 Factory ..	45	24¾	14½	9½	93¾
Pittsworth Dairy Co., Ltd., No. 3 Factory ..	44	25	14¾	9¾	93½
Malling Co-operative Cheese Society, Ltd., Maclagan	44	24¾	14¾	9½	93
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	44	24½	14½	9¾	92¾
Downs Co-operative Dairy Co., Ltd., Hodgson's Vale	43½	24¾	14½	9½	92¼
Downs Co-operative Dairy Co., Ltd., Jondaryan	43	24¾	14½	10	92¼
Downs Co-operative Dairy Co., Ltd., Westbrook	43	24½	14½	10	92

CHEESE AWARDS—*continued.*

Loaf cheese, over two months old, unpasteurised; two, not exceeding 12 lb. —*contd.*

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Oakey District Co-operative Butter Co., Ltd., Kelvinhaugh	43	24½	14½	9¾	91¾
Biddeston Co-operative Dairy Co., Ltd.	42½	24¾	14¾	9¾	90¾
Downs Co-operative Dairy Co., Ltd., Koondai ..	42	24¾	14½	9	90¼
Warwick Butter and Dairy Co., Ltd., Pratten ..	41½	24½	14¾	9½	90¼
Oakey District Co-operative Butter Co., Ltd., Crosshill	41	24½	15	9½	90
Warwick Butter and Dairy Co., Ltd., Greymare	41½	24½	14½	9½	90
Cooranga North Co-operative Dairy Co., Ltd. ..	41	24¼	14½	9½	89¾
Kooroongarra Co-operative Dairy Co., Ltd. ..	41	24½	14½	9½	89½
Yargullen Co-operative Dairy Co., Ltd.	40	24½	14½	9¾	88¾
Maryborough Co-operative Dairy Co., Ltd., Brooklands	40	24½	14½	9½	88½
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	40	24½	14	9½	88
Warwick Butter and Dairy Co., Ltd., Talgai ..	38	24	14½	9¼	85¾

Loaf cheese, under six weeks old, pasteurised; two, not exceeding 12 lb.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Pittsworth Dairy Co., Ltd., No. 2 Factory ..	46	24¾	14¾	10	95½
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	45⅓	25	14¾	9¾	95
Malling Co-operative Cheese Society, Maclagan	45½	24¾	14½	10	94¾
Pittsworth Dairy Co., Ltd., No. 1 Factory ..	45½	24¼	14½	10	94¼
Southbrook Co-operative Dairy Co., Ltd. ..	44	25	15	10	94
Biddeston Co-operative Dairy Co., Ltd.	45	24½	14½	9½	93½
Cooranga North Co-operative Dairy Co., Ltd. ..	44	24⅓	14½	9½	92⅓
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	43	24½	14½	9¾	91¾

Loaf cheese, under six weeks old, unpasteurised; two, not exceeding 12 lb.

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Biddeston Co-operative Dairy Co., Ltd.	45½	24¾	15	9½	94¾
Malling Co-operative Cheese Society, Ltd., Maclagan	44½	25	15	10	94½
Downs Co-operative Dairy Co., Ltd., Westbrook	45	24¼	14¾	10	94
Downs Co-operative Dairy Co., Ltd., Hodgson's Vale	44	25	15	9¾	93¾
Downs Co-operative Dairy Co., Ltd., Koondai ..	43½	24¾	15	10	93¼
Mount Tyson Farmers' Co-operative Dairy Co., Ltd.	43½	25	14¾	10	93¼

CHEESE AWARDS—*continued.*

Loaf cheese, under six weeks old, unpasteurised; two, not exceeding 12 lb.—*contd.*

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Pittsworth Dairy Co., Ltd., No. 3 Factory ..	44	24¾	14¾	9¾	93¼
Yargullen Co-operative Dairy Co., Ltd.	43½	24¾	14¾	10	93
Pittsworth Dairy Co., Ltd., No. 4 Factory ..	43	24¾	14¾	10	92½
Warwick Butter and Dairy Co., Ltd., Talgai ..	43	24¾	14¾	10	92½
Oakey District Co-operative Butter Co., Ltd., Kelvinhaugh	43	24¼	17¼	9½	91½
Warwick Butter and Dairy Co., Ltd., Greymare	43	24½	14½	9½	91½
Oakey District Co-operative Butter Co., Ltd., Crosshill	42	24½	14¾	10	91¼
Mount Sibley Co-operative Dairy Co., Ltd., Greenmount	42	25	14¾	9¼	91
Warwick Butter and Dairy Co., Ltd., Pratten ..	42	24½	14½	9½	90½
Nathan, Joseph, and Co. (Aust.), Ltd., Port Fairy, Victoria	42	24	14	9¾	89¾
Downs Co-operative Dairy Co., Ltd., Jondaryan ..	39	25	14¾	10	88¾

SPECIAL PRIZE FOR THE FACTORY SECURING THE GREATEST AGGREGATE OF POINTS IN ALL CLASSES (EXCEPT TROPHY) FOR CHEESE.

	Malling Co-operative Cheese Society, Limited, (Maclagan).	Mount Tyson Farmers' Co-operative Dairy Company, Limited.	Pittsworth Dairy Company, Limited, (No. 1 Factory).	Biddeston Co-operative Dairy Company, Limited.	Cooranga North Co-operative Company, Limited.	Southbrook Co-operative Dairy Company, Limited.
Export Cheese, White, 70 to 80 lb. Pasteurised, 6 weeks	92½	95½	96½	93	..	92
Export Cheese, White, 70 to 80 lb., Unpasteurised, 6 weeks	93¼	91	96	90½	..	..
Export Cheese, Coloured, 70 to 80 lb., Pasteurised, 6 weeks	94¾	94½	95¾	93¾	95¼	91
Export Cheese, Coloured, 70 to 80 lb., Unpasteurised, 6 weeks	92½	92½	86¼	90½	90	..
Medium Cheese, over 2 Months, 40 lb., Pasteurised	92½	93	93	..	94	95¾
Medium Cheese, over 2 Months, 40 lb., Unpasteurised	95	92¾	95½	92	90	..
Medium Cheese, under 6 Weeks, 40 lb., Pasteurised	95¼	95	94	93	90½	93¼
Medium Cheese, under 6 Weeks, 40 lb., Unpasteurised	93	90	92	90¾	89	..
Loaf Cheese, over 2 Months, 12 lb., Pasteurised	94	94¾	94½	95¾	..	94¼
Loaf Cheese, over 2 Months, 12 lb., Unpasteurised	93	92¾	94¼	90¾	89¼	..
Loaf Cheese, under 6 Weeks, 12 lb., Pasteurised	94¾	95	94¼	93½	92¾	94
Loaf Cheese, under 6 Weeks, 12 lb., Unpasteurised	94½	93¼	..	94¾	..	..
Totals	1,125	1,120	1,032	1,018	730¾	560¼

CHEESE AWARDS—*continued.*

TROPHY OF CHEESE.

	Quality.	Display.	Effect.	Total.
Possible points	300	100	100	500
Pittsworth Dairy Co., Ltd., Pittsworth	279	98	92	469
Downs Co-operative Dairy Co., Ltd., Toowoomba ..	267	90	98	455

HAMS, BACON, AND BY-PRODUCTS.

BACON, FACTORY CURED, SIX SIDES.

	Flavour.	Texture and Firmness.	Proportion of Fat and Lean.	Trimming and Finish.	Smoking.	Colour.	Total.
Possible points	45	10	10	10	10	15	100
Queensland Co-operative Bacon Co., Ltd., Murarrie	44	9	9	8½	9½	9	89
Queensland Co-operative Bacon Co., Ltd., Murarrie	43	8½	9	8½	9½	9	87½
J. C. Hutton Propty., Ltd., Canterbury, New South Wales ..	42	7½	9	8½	9	8½	84½
J. C. Hutton Propty., Ltd., Brisbane	41	7½	9	7½	9	8	82
J. C. Hutton Propty., Ltd., Brisbane	41½	8	9	7	8½	7½	81½
Foley Bros., Ltd., Northern-Central Creamery, Lismore, New South Wales	40	7	9½	7	8	6½	78
Foggitt, Jones, Ltd., Brisbane ..	41½	5½	9	7	8	6½	77½
Foggitt, Jones, Ltd., Brisbane ..	41½	5½	9	7	8	6½	77½
Foggitt, Jones, Ltd., Brisbane ..	40	5	9	6½	8	6	74½
HAMS, SIX, FACTORY CURED.							
J. C. Hutton Propty., Ltd., Brisbane	43	9	9½	9	9	14	93½
Queensland Co-operative Bacon Co., Ltd., Murarrie	44	7½	9	8	8½	13	90
Foley Bros.' Ltd., Northern-Central Creamery, Lismore, New South Wales	43½	8	9	8	8	13	89½
J. C. Hutton Propty., Ltd., Canterbury, New South Wales ..	41½	8½	8½	8	8½	13	88
J. C. Hutton Propty., Ltd., Brisbane	42	7	9	7½	8½	13	87
Foggitt, Jones, Ltd., Brisbane ..	41½	8	7	7	7½	13	84
Foggitt, Jones, Ltd., Brisbane ..	41	7	8	7	7½	13	83½
Foggitt, Jones, Ltd., Brisbane ..	41½	7	7	8	7½	12½	83½
Queensland Co-operative Bacon Co., Ltd., Murarrie	42	6½	7	7	9	12	83½

Sausages, smoked, 14 lb.—Queensland Co-operative Bacon Co., Ltd., Murarrie, 1 and 2. J. C. Hutton Propty., Ltd. (Brisbane), recommended for third prize.

Lard, one box, 56 lb.—Queensland Co-operative Bacon Co., Ltd., Murarrie, 94½ points, 1; Queensland Co-operative Bacon Co., Ltd., Murarrie, 94 points, 2. Foley Bros. Ltd. (Northern Central Creamery), Lismore, New South Wales, 92½ points, 3.

Hams, farmers'.—W. Dearling, 64 points, 1.

Hen eggs, judged by weight.—Mrs. W. Vogel 1, Mrs. A. Wyllie 2.

HOME MILKING COMPETITION.

Cow or heifer giving greatest yield of butter fat in 24 hours under Babcock test, milk to contain on an average not less than 3·3 per cent. of butter fat.

		Milk, Lb.	Test.	Butter Fats, Lb.
Illawarra Milking Shorthorns.				
B. O'Connor's Elsie IV. of Oakdale	M.	26·7	3·0	0·942
	N.	25·3	7·5	2·23
	E.	21·5	4·4	1·11
		73·5	..	4·282
J. Phillips' Chance of Woodleigh	M.	23	4·4	1·012
	N.	23	4·4	1·012
	E.	22	5·0	1·10
		68	..	3·124
B. O'Connor's Dahlia II. of Hillview	M.	27½	3·5	0·9625
	N	25½	3·6	0·918
	E.	27	3·9	1·053
		80	..	2·9335
Ayrshires.				
J. Holmes' Belle of Longlands	M.	29	4·8	1·392
	E.	29	5·5	1·595
		58	..	2·987
J. C. Mann's Violet of Glenmore	M.	26	3·6	0·936
	E.	28	4·0	1·12
		54	..	2·056
G. Bell's Young Duchess IV.	E.	18¼	3·2	0·584
	M.	17¾	3·4	0·603
	N.	17	3·3	0·561
		53	..	1·748
Jerseys.				
Duffield and Sons' Talgai Creole	M.	15¾	3·5	0·551
	N.	18¾	7·9	1·481
	E.	18½	7·4	1·369
		53	..	3·401
Duffield and Son's Goldie of Brook Lodge	M.	17	4·0	0·68
	N.	13¾	5·0	0·6875
	E.	16½	5·3	0·8745
		47¼	..	2·2420

HOME MILKING COMPETITION —*continued.*

		Milk. Lb.	Test.	Butter Fat. Lb.
Jerseys—continued.				
J. Williams' Carlyle Lady Lynn	M.	15½	4·2	0·651
	N.	12	5·5	0·66
	E.	13	5·3	0·689
		40½	..	2·000
J. Todd's Ickle Girl of Southport	M.	17	3·5	0·595
	N.	14	4·8	0·672
	E.	12½	4·0	0·50
		43½	..	1·767
Freisians.				
P. P. Falt's Dairymaid	M.	26	4·0	1·04
	N.	24	7·0	1·68
	E.	23	3·6	0·828
		73	..	3·548
E. J. Wecker's Oaklea Millbong de Kol	M.	26	4·5	1·170
	N.	26	3·7	0·962
	E.	27½	3·6	0·990
		79½	..	3·122
G. Newman's Belle of Friesland II.	M.	31	3·3	1·023
	N.	29½	3·5	1·0325
	E.	23	4·2	0·966
		83½	..	3·0215
P. P. Falt's Dairymaid II. of Ryfield	M.	26	4·8	1·248
	N.	19	4·7	0·898
	E.	22	4·0	0·88
		67	..	8·02
Guernseys.				
A. S. Cooke's Golden Girl II. of Woolongbar ..	M.	12½	4·8	0·600
	N.	10½	5·7	0·598
	E.	10	5·6	0·560
		33	..	1·758
Jackson and Schofield's Trixie II.	M.	14½	4·4	0·638
	E.	9½	5·3	0·5035
		24	..	1·1415

MILKING AWARDS.

COW, FOUR YEARS AND OVER, AVERAGING GREATEST DAILY YIELD OF BUTTER-FAT FOR FORTY-EIGHT HOURS.

		Weight of Milk, lb.	Per-centage.	Butter Fat.	Number Points for Butter, 24 hours.	Lactation Points.	Total Points.
B. O'Connor's Elsie 4th of Oakdale	M.	25·14	3·7	·9573	..	..	..
	E.	25·12	3·8	·9785	..	..	..
	M.	22·1	3·5	·7721	..	..	..
	E.	27·3	3·3	·8971	..	..	..
	M.	26·3	4·7	1·2308	..	..	..
	E.	23·4	4·2	·9765	..	..	..
		150·5	..	5·8123	46·50	5·2	51·70
J. Phillip's Chance of Woodleigh	M.	22·4	4·2	·9345	..	..	..
	E.	19·8	4·3	·8385	..	..	..
	M.	20·14	4·3	·8976	..	..	..
	E.	23·10	3·5	·8268	..	..	..
	M.	21·11	4·0	·8675	..	..	..
	E.	21·6	3·8	·8722	..	..	..
		129·5	..	5·1771	41·42	..	41·42
Macfarlane Bros.' Violo 26th of Darbarlara	M.	23·6	4·1	·9583	..	..	..
	E.	21·0	3·9	·8190	..	..	..
	M.	19·9	3·7	·7238	..	..	..
	E.	24·6	3·4	·8287	..	..	..
	M.	20·2	4·1	·8251	..	..	..
	E.	19·2	3·5	·6693	..	..	..
		127·9	..	4·8242	38·59	..	38·59
A. Pickel's Model of Blacklands	M.	20·1	3·8	·7623	..	..	..
	E.	19·12	4·0	·7900	..	..	..
	M.	20·1	4·3	·8626	..	..	..
	E.	22·15	3·2	·7430	..	..	..
	M.	21·3	4·0	·8475	..	..	..
	E.	18·4	4·2	·7665	..	..	..
		122·4	..	4·7629	38·10	..	38·10
R. Mears's Hazel of Morden	M.	18·8	3·5	·6475	..	..	..
	E.	15·14	3·9	·6191	..	..	..
	M.	16·6	4·0	·6550	..	..	..
	E.	15·15	2·9	·4621	..	..	..
	M.	16·12	3·7	·6197	..	..	..
	E.	16·11	4·2	·7008	..	..	..
		100·2	..	3·7042	29·63	7·9	37·53
Brown Bros.' Korndyke Lottie Canary	M.	15·5	4·1	·6278	..	..	..
	E.	12·0	4·3	·5160	..	..	..
	M.	12·7	3·9	·4850	..	..	..
	E.	16·8	3·7	·6105	..	..	..
	M.	13·9	3·8	·5153	..	..	..
	E.	13·3	3·8	·5011	..	..	..
		83·0	..	3·2557	26·04	10·0	36·04

MILKING AWARDS *-continued.*

COW, FOUR YEARS AND OVER, AVERAGING GREATEST DAILY YIELD OF BUTTER-FAT FOR FORTY-EIGHT HOURS—*continued.*

——	—	Weight of Milk, lb.	Per-centage.	Butter Fat.	Number Points for Butter, 24 hours.	Lactation Points.	Total Points.
Cowan Keys's Waitress	M.	24·4	3·3	·8002	..	..	..
	E.	21·0	3·8	·7980	..	..	..
	M.	19·12	3·6	·7110	..	..	..
	E.	23·4	3·6	·8370	..	..	..
	M.	18·10	3·9	·7263	..	..	..
	E.	18·9	3·3	·6125	..	..	..
		125·7	..	4·485	35·88	..	35·88
R. Mears's Tulip of Morden	M.	19·4	3·6	·6930	..	..	..
	E.	14·6	4·6	·6612	..	..	..
	M.	17·10	4·9	·8636	..	..	..
	E.	18·12	4·6	·8625	..	..	..
	M.	14·3	4·6	·6526	..	..	..
	E.	16·8	4·5	·7425	..	..	..
		100·11	..	4·4754	35·80	..	35·80
W. F. Hammel's Violet	M.	20·4	3·4	·6885	..	..	..
	E.	16·9	5·7	·9440	..	..	..
	M.	14·2	4·8	·7680	..	..	..
	E.	15·8	3·1	·4805	..	..	..
	M.	16·11	4·9	·8176	..	..	..
	E.	15·1	4·0	·6025	..	..	..
		98·3	..	4·2111	33·69	1·3	34·89
J. Williams's Carlyle Lady Lynn	M.	16·2	4·5	·7256	..	..	..
	E.	13·15	4·6	·6411	..	..	..
	M.	15·6	5·4	·8302	..	..	..
	E.	16·1	4·2	·6746	..	..	..
	M.	13·2	5·2	·6825	..	..	..
	E.	14·6	4·9	·7043	..	..	..
		89·0	..	4·2583	34·07	·7	34·77
B. O'Connor's Skylark II. of Cosy Camp	M.	17·7	3·5	·6103	..	..	..
	E.	15·4	5·2	·7930	..	..	..
	M.	14·12	4·2	·6195	..	..	..
	E.	18·3	3·2	·5820	..	..	..
	M.	16·10	5·4	·8977	..	..	..
	E.	13·0	4·2	·5460	..	..	..
		95·4	..	4·0485	32·39	..	32·39

MILKING AWARDS—*continued.*

COW, FOUR YEARS AND OVER, AVERAGING GREATEST DAILY YIELD OF BUTTER-FAT FOR FORTY-EIGHT HOURS—*continued.*

	—	Weight of Milk, lb.	Per-centage	Butter Fat.	Number Points for Butter, 24 hours.	Lactation Points.	Total Points.
Brown Bros.' Waimarino	M.	23·14	3·1	·7401	..	..	..
	E.	19·4	3·4	·6545	..	..	..
	M.	17·10	3·4	·5992	..	..	..
	E.	21·8	2·9	·6325	..	..	..
	M.	16·1	3·2	·5320	..	..	..
	E.	21·6	3·6	·7695	..	..	..
		120·4	..	3·9278	31·42	..	31·42
Scott Bros.' Dawn III. of Burradale	M.	18·0	3·5	·6300	..	..	..
	E.	14·2	3·7	·5226	..	..	..
	M.	15·2	3·8	·5747	..	..	..
	E.	18·9	3·4	·6311	..	..	..
	M.	14·2	4·1	·5791	..	..	..
	E.	15·0	3·6	·5400	..	..	..
		94·15	..	3·4775	27·82	..	27·82
R. T. Ward's Duchess III. of Mount View	M.	18·11	3·4	·6353	..	..	..
	E.	15·11	4·1	·6431	..	..	..
	M.	12·7	3·2	·3980	..	..	..
	E.	16·9	3·6	·5962	..	..	..
	M.	14·4	4·1	·5842	..	..	..
	E.	13·4	4·4	·5830	..	..	..
		90·14	..	3·4398	27·52	..	27·52
G. Isle's Colleen II. of Eldo	M.	12·6	3·8	·4702	..	..	..
	E.	11·11	4·8	·5610	..	..	..
	M.	11·8	4·7	·5405	..	..	..
	E.	12·0	3·7	·4440	..	..	..
	M.	11·14	4·8	·5700	..	..	..
	E.	9·13	3·9	·3826	..	..	..
		69·4	..	2·9683	23·74	..	23·74
G. Bell's Young Duchess IV.	M.	15·7	3·8	·5866	..	..	..
	E.	12·14	3·5	·4506	..	..	..
	M.	13·14	3·6	·4995	..	..	..
	E.	16·14	3·1	·5231	..	..	..
	M.	13·7	3·4	·4568	..	..	..
	E.	13·12	3·2	·4400	..	..	..
		86·4	..	2·9566	23·65	..	23·65
G. Isle's Redwing II. of Eldo	M.	10·12	3·8	·4108	..	..	..
	E.	9·2	4·0	·3650	..	..	..
	M.	9·1	3·6	·3262	..	..	..
	E.	11·1	3·9	·4314	..	..	..
	M.	9·1	3·8	·3443	..	..	..
	E.	9·9	3·4	·3251	..	..	..
		58·11	..	2·2028	17·62	..	17·62

MILKING AWARDS—*continued.*

COW OR HEIFER, UNDER FOUR YEARS OLD, AVERAGING THE GREATEST DAILY YIELD OF BUTTER-FAT FOR FORTY-EIGHT HOURS.

		Weight of Milk, lb.	Per-centage.	Butter Fat.	Number Points for Butter, 24 hours.	Lactation Points.	Total Points.
W. M. Krause's Dolphin of Allawah	M.	20·10	4·5	·9281	..	..	..
	E.	17·7	5·0	·8718	..	..	..
	M.	14·4	3·4	·4845	..	..	..
	E.	18·8	3·4	·6290	..	..	..
	M.	17·10	4·4	·7755	..	..	..
	E.	16·4	5·4	·8775	..	..	..
		..	..	..	..	..	..
F. O. Hayter's Fussy 3rd of Spurfield	M.	18·14	3·5	·6606	..	..	..
	E.	16·4	3·9	·6337	..	..	..
	M.	16·0	3·8	·6080	..	..	..
	E.	17·15	3·5	·6278	..	..	..
	M.	14·8	4·6	·6670	..	..	..
	E.	14·9	3·8	·5533	..	..	..
		98·2	..	3·7504	30·0	..	30·0
A. Cooke's Golden Girl 2nd of Wollongbar	M.	8·0	5·4	·4320	..	..	..
	E.	7·3	4·5	·3234	..	..	..
	M.	7·12	4·9	·3797	..	..	..
	E.	8·9	4·0	·3425	..	..	..
	M.	9·0	4·5	·4410	..	..	..
	E.	8·2	5·1	·4143	..	..	..
		48·10	..	2·3329	18·66	6·9	25·56
D. Spoor and Sons' Prettyface of Blacklands	M.	13·1	3·4	·4441	..	..	..
	E.	11·12	3·5	·4112	..	..	..
	M.	10·10	3·3	·3506	..	..	..
	E.	15·1	3·4	·5121	..	..	..
	M.	11·55	3·7	·4416	..	..	..
	E.	12·0	3·5	·4200	..	..	..
		74·7	..	2·5796	20·64	..	20·64

COW OR HEIFER, UNDER FOUR YEARS OLD, AVERAGING THE GREATEST DAILY YIELD OF BUTTER-FAT FOR FORTY-EIGHT HOURS.

		Weight of Milk, lb.	Per-centage.	Butter Fat.	Number Points for Butter, 24 hours.
W. M. Krause's Dolphin of Allawah ..	M.	20·10	4·5	·9281	..
	E.	17·7	5·0	·8718	..
	M.	14·4	3·4	·4845	..
	E.	18·8	3·4	·6290	..
	M.	17·10	4·4	·7755	..
	E.	16·4	5·4	·8775	..
		104·11	..	4·5664	2·2832

MILKING AWARDS—*continued.*

COW OR HEIFER, UNDER FOUR YEARS OLD, AVERAGING THE GREATEST DAILY YIELD OF BUTTER-FAT FOR FORTY-EIGHT HOURS—*continued.*

		Weight of Milk, lb.	Per-centage.	Butter Fat.	Number Points for Butter, 24 hours.
F. O. Hayter's Fussy 3rd of Spurfield ..	M.	18·14	3·5	·6606	..
	E.	16·4	3·9	·6637	..
	M.	16·0	3·8	·6080	..
	E.	17·15	3·5	·6278	..
	M.	14·8	4·6	·6670	..
	E.	14·9	3·8	·5533	..
		98·2	..	3·7504	1·8752
A. Cooke's Shamrock 6th	M.	11·1	5·1	·5641	..
	E.	10·0	4·9	·4900	..
	M.	11·1	4·8	·5310	..
	E.	11·2	4·4	·4895	..
	M.	11·6	5·2	·5915	..
	E.	10·0	5·0	·5000	..
		64·10	..	3·1661	1·5835
Cowan Keys's Jewel of Sunnymeade ..	M.	13·11	4·0	·5475	..
	E.	11·14	4·1	·4868	..
	M.	11·6	4·0	·4550	..
	E.	13·5	3·8	·5058	..
	M.	10·11	4·1	·4381	..
	E.	11·0	4·0	·4400	..
		71·15	..	2·8732	1·4366
D. Spoor and Sons' Prettyface of Blacklands	M.	13·1	3·4	·4441	..
	E.	11·12	3·5	·4112	..
	M.	10·10	3·3	·3506	..
	E.	15·1	3·4	·5121	..
	M.	11·15	3·7	·4416	..
	E.	12·10	3·5	·4200	..
		74·7	..	2·5796	1·2898

ROYAL NATIONAL CHAMPION BUTTER-FAT TEST.

Cow, any breeding, averaging the greatest daily yield of butter-fat for forty-eight hours. Points of lactation to be considered. (Special prize presented by Brisbane Newspaper Company, Ltd.)

B. O'CONNOR'S ELSIE IV. OF OAKDALE (I.M.S.).

Total Weight of Milk	150·5
Butter-Fat	5·8123
Commercial Butter	2·9061
Number Points Butter for Twenty-four Hours	46·50
Lactation Points	5·2
Total Points	51·7

MILKING AWARDS—*continued.*

COW YIELDING THE LARGEST SUPPLY OF MILK IN FORTY-EIGHT HOURS.

	Lb.
B. O'Connor's Elsie IV. of Oakdale	150·5
J. Phillips's Chance of Woodleigh	129·5
Macfarlane Bros'. Violo XXVI. of Darbarlara	127·9
Cowan Keys's Waitress	125·7
A. Pickel's Model of Blacklands	122·4
R. Mears's Tulip of Morden	100·11
W. F. Hammel's Violet	98·3
Scott Bros.' Dawn III. of Burrandale	94·15
R. T. Ward's Duchess III. of Mount View	90·4
G. Bell's Young Duchess IV.	86·4
G. Isle's Colleen II. of Eldo	69·4
G. Isle's Redwing II. of Eldo	58·11

SPECIAL PRIZE FOR COW GIVING BEST BUTTER-FAT RESULTS.

B. O'Connor's Elsie IV. of Oakdale, 5·8123 lb. of butter-fat.

COW, FOUR YEARS AND OVER, AVERAGING GREATEST DAILY YIELD OF BUTTER FAT FOR FORTY-EIGHT HOURS.

	Total Weight of Milk.	Butter Fat.	Number of Points for Butter, 24 Hours.
B. O'Connor's Elsie IV. of Oakdale	150·5	5·8123	2·9061
J. Phillips's Chance of Woodleigh	129·5	5·1771	2·5885
Macfarlane Bros.' Violo XXVI. of Darbarlara	127·9	4·8242	2·4121
A. Pickel's Model of Blacklands	122·4	4·7629	2·3814
Cowan Keys's Waitress	125·7	4·8850	2·2425
R. Mears's Tulip of Morden	100·11	4·4754	2·2377
J. Williams's Carlyle Lady Lynn	89·0	4·2583	2·1296
W. F. Hammel's Violet	98·3	4·2111	2·1055
B. O'Connor's Skylark II. of Cosy Camp	95·4	4·0485	2·0242
Brown Bros.' Waimarino	120·4	3·9278	1·9639
R. Mears's Hazel of Morden	100·2	3·7042	1·8521
Scott Bros.' Dawn III. of Burradale	94·15	3·4775	1·7387
R. T. Ward's Duchess III. of Mount View	90·14	3·4398	1·7199
G. Isle's Colleen II. of Eldo	69·4	2·9683	1·4841
Geo. Bell's Young Duchess IV.	86·4	2·9566	1·4783
G. Isle's Redwing II. of Eldo	58·11	2·2028	1·1014

THE BUTTER-FAT TEST.

The record quantity of milk was given this year by B. O'Connor's Elsie IV. of Oakdale—150·5 lb. of milk and 5·8123 lb. of commercial butter fat. The amount of commercial butter fat, however, has been twice exceeded—in 1922 by E. D. Lawley's Lorna of Arley, which gave 6·587 lb. from 132 lb. 9 oz. of milk—the record to date; and in 1918 by H. Benbow's Joyce, which gave 5·902 lb. from 122 lb. 12 oz. of milk. The figures for this year, however, will stand comparison with dairying competitions in most parts of the world.

FAT CATTLE.

(Judge, Mr. J. Ross.)

Pen of 3 bullocks, over 4 and under 6 years: Scott Bros., 1; H. Cox and Son, 2. Pen of 3 Hereford bullocks, under 4 years: Ferling Bros., 1; I. J. and M. S. Moore, 2. Pen of 3 bullocks, under 4 years, other than Shorthorns and Herefords: D. W. McLeod, 1; R. A. Howell, 2. Pen of 3 crossbred bullocks, under 4 years: T. Hawkins, 1 and 2. Pen of 3 bullocks, under 4 years, suitable for freezing: I. J. and M. S. Moore. Pen of 3 bullocks, any recognised beef breed suitable for export: I. J. and M. S. Moore. Pen of 3 bullocks, of any recognised polled or dehorned beef breed, suitable for export: D. W. McLeod. Pen of 3 bullocks, suitable for freezing: H. Beak and Sons. Pen of 3 steers, over 2 and under 3 years: I. J. and M. S. Moore, 1; S. Watson and Sons, 2. Pen of 3 Aberdeen Angus steers, over 3 and under 4 years: D. W. McLeod. Pure-bred steer, under 2 years: Archer Bros. Ltd., Minever 4th, 1; J. W. Maxwell, 2. Pen of 3 cows, over 4 and not exceeding 6 years: Macansh Estates Ltd., 1; W. Ross Munro, 2. Bullock, over 4 and not exceeding 6 years: I. J. and M. S. Moore, 1; R. J. Douglas, 2. Bullock, under 4 years: E. C. McConnel, 1; H. Beak and Sons, 2. Steer, under 3 years: I. J. and M. S. Moore, 1 and 2. Heaviest bullock, live weight: C. A. Stenzel. Bullock, for export, not over 4 years: E. C. McConnel, 1; D. W. McLeod, 2. Bullock for local consumption, not over 4 years: E. C. McConnel, 1; I. J. and M. S. Moore, 2. Cow, over 4 and not exceeding 6 years: R. F. Douglas, 1; G. C. Clark, 2.

Herefords.

(Judge, Mr. R. Bach.)

Bull, 4 and under 6 years: J. Sparkes' Mansee Banner Prince 1, Archer Bros., Ltd., Fanfare 2nd 2, E. C. McConnel's Cressbrook Merry Boy 3. Bull, 3 and under 4 years: J. H. S. Barnes' King Broadward 1, J. Sparkes' Admiration 2. Bull, 3 and under 3 years: J. H. S. Barnes' Champion Chief 1, C. H. Tindal's Ramornie Royal 2, F. B. Cory's Vermont Prudent Boy 3. Bull, 18 months and under 2 years: J. H. S. Barnes' King Flower 1, E. C. McConnel's Cressbrook Rufus 2, J. Sparkes' Lyndley Plum 3. Bull, 12 and under 18 months: Archer Bros.', Ltd., Minever 5th 1, Archer Bros.' Ltd., Fanfare 3rd 2, F. Maxwell's Maxwelton Minerva Resolute 3. Bull calf, 6 and under 12 months: C. H. Tindal's Ramornie Royalist 1, Archer Bros. Ltd., Odin 2, Wilson and McDougall, Ltd's., Balcomba Prince 30th 3. Pair of bulls, 12 months and under 2 years: E. C. McConnel's Cressbrook Rufus and Cressbrook Lord Mayor 1, F. Maxwell's Maxwelton Major and Maxwelton Prime Minister 2. Three bulls, 12 months and under 3 years: F. Maxwell. Cow, 4 and under 6 years: J. H. S. Barnes' Miss Beattie 2nd. Cow, 3 and under 4 years: J. H. S. Barnes' Canning Chance. Cow, with calf at foot: J. H. S. Barnes' Canning Chance. Cow or heifer, 2 and under 3 years: J. Sparkes' Madge Lyndley 1, J. H. S. Barnes' Canning Flower Queen 2. Heifer, 18 months and under 2 years: J. Sparkes' Lyndley Beauty 2nd 1, E. C. McConnel's Cressbrook Saucy 4th 2. Heifer, 12 and under 18 months: J. Sparkes' Ruby Lyndley 2nd. Heifer calf, 6 and under 12 months: J. H. S. Barnes 1, E. C. McConnel's Cressbrook Pattern 7th 2, E. C. McConnel's Cressbrook Rose 9th 3. Pair of heifers, 12 months and under 2 years: J. Sparkes' Lyndley Beauty 2nd and Ruby Lyndley 2nd. Three heifers, 12 months and under 3 years: J. Sparkes. Breeders' group: J. H. S. Barnes 1, J. Sparkes 2, E. C. McConnel 3. Sires' progeny stakes group: J. H. S. Barnes 1, J. Sparkes 2, E. C. McConnel 3. Hereford yearling steer: Archer Bros., Ltd., Minever 4th 1, J. Sparkes' Jumbo Lyndley 2.

Polled Herefords.

Bull, 1 and under 3 years: A. H. Stirrat's King Perfection 1, A. Stirrat's Marvel's Dandy 2. Cow, 3 years and over: A. H. Stirrat's Marvel's Lass 1, A. H. Stirrat's Jewel Admiration 2.

Champions.

Hereford bull: J. H. S. Barnes' Champion Chief. Reserve champion: J. Sparkes' Mansel Banner Prince. Junior Hereford bull: J. H. S. Barnes' King Flower. Hereford cow: J. H. S. Barnes' Miss Beattie 2nd. Reserve champion: J. H. S. Barnes' Canning Chance. Polled Hereford bull: A. H. Stirrat's King Perfection. Reserve champion: A. Stirrat's Marvel's Dandy. Polled Hereford cow: A. H. Stirrat's Marvel's Lass. Reserve champion: A. H. Stirrat's Jewel Admiration.

Devons.

(Judge Mr. Wm. Kent.)

Bull, 3 years and over: R. A. Howell's Forester's "Gold-dust." Bull, 2 and under 3 years: R. A. Howell's First Perfection. Bull calf, 6 and under 12 months: R. A. Howell's Field Marshal 112th 1, R. A. Howell's Field Marshal 113th 2. Cow, 3 years and over: R. A. Howell's Contessa 78th. Heifer calf, 6 and under 12 months: R. A. Howell's Lydia 114th.

Aberdeen Angus.

Bull, 3 years and over: G. C. Clark's Manfred bull. One and under 2 years: G. C. Clark's Fairy Prince. Heifer, 2 and under 3 years: G. C. Clark's Lusty 17th. Heifer, 1 and under 2 years: G. C. Clark's Scottish Peeress. Heifer calf, 6 and under 12 months: G. C. Clark's Miss Manfreda.

Red Polled.

Bull, 3 years and over: E. J. McConnel's Royal Farmer. Bull, 6 months and under 3 years: E. J. McConnel's Marshlands Royal Lark 1, E. J. McConnel's Marshlands Royal Bilton 2.

Herd Bulls.

Three Hereford bulls, one and under 3 years: E. C. McConnel. Three Aberdeen Angus bulls: D. W. McLeod.

Shorthorns.

(Judge, Mr. C. E. Parsons.)

Bull, 4 years and over: J. Burgess's Adcote Butterfly Beau 1, R. P. Lord's Clifton Cherry Colonel 2. Bull, 3 and under 4 years: A. E. Slade's Star of Ulster 1, J. Burgess's Fairy Knight 2. Bull, 2 and under 3 years: A. E. Slade's Warspite III. 1, J. S. Thonemann's Kuyura Duke of Derimut 14th 2. Bull, 18 months and under 2 years: J. S. Thonemann's Kuyura Morning Duke III. 1, late C. E. McDougall Estate's Lyndhurst Royal Peer 37th 2, D. M. Fraser's Langley Pinks Earl 14th 3. Bull, 12 and under 18 months: A. E. Slade's Warspite Adonis 1, J. Burgess's Canning Downs South Royal Donnington 2, J. Burgess's Canning Downs South Fairy Knight 3. Bull calf, 6 and under 12 months: A. E. Slade's Glenbar Mariner 1, A. E. Slade's Glenbar Peer 2, J. Burgess's Canning Downs South Donnington Prince 3. Group of three bulls, 12 months and under 3 years: J. Burgess 1, A. E. Slade 2. Cow, 4 years and over: late C. E. McDougall Estate's Lyndhurst Duchess of Ettrick 1, J. Burgess's Golden Bessie 7th 2, A. E. Slade's Aldsworth Picture 3. Cow, 3 and under 4 years: late C. E. McDougall Estate's Lyndhurst Royal Rose 11th. Cow, with calf at foot: J. Burgess's Golden Bessie 7th 1, J. Burgess's Oxford Floss 2, A. E. Slade's Aldsworth Picture 3. Cow, with two or more of her progeny: J. Burgess's Oxford's Floss 1, J. Burgess's Golden Bessie 7th 2, late C. E. McDougall Estate's Lyndhurst Royal Rose 3. Cow or heifer, 2 and under 3 years: late C. E. McDougall Estate's Lyndhurst Lily of Gurley II. 1, J. Burgess's Oxford Countess 2, J. S. Thonemann's Kukura Duchess of Derrimut 14th 3. Heifer, 18 months and under 2 years: J. Burgess's Golden Butterfly II. 1, late C. E. McDougall Estate's Lyndhurst Lady Beverley 20th 2. Heifer, 12 and under 18 months: late C. E. McDougall Estate's Lyndhurst Royal Rose 13th 1, J. Burgess's Canning Downs South Lady Donnington 2, J. S. Thonemann's Kuyura Duchess of Derrimut 20th 3. Heifer calf, 6 and under 12 months: J. Burgess's Canning Downs South Oxford Butterfly 1, A. S. Slade's Glenbar Duchess II. 2, Wilson and McDougall Limited Fragrance of Calliope 3. Group of three heifers, 12 months and under 3 years: J. Burgess 1, late C. E. McDougall Estate 2. Sire and progeny: J. Burgess's Adcote Butterfly Beau. Breeder's group: J. Burgess. Exhibitor's group: J. Burgess. Sire's progeny stakes group: J. Burgess 1 and 2, Wilson and McDougall Limited 3.

Champions.

Devon bull: R. A. Howell's Forester's Gold-dust. Devon cow: R. A. Howell's Lusty 17th. Aberdeen Angus bull: G. C. Clark's Manfred. Reserve champion: G. C. Clark's Fairy Prince. Aberdeen Angus cow: G. C. Clark's Scottish Peeress. Red polled bull: E. J. McConnel's Royal Farmer. Reserve champion: E. J. McConnel's Marshlands Royal Lark. Shorthorn bull: A. E. Slade's Star of Ulster. Reserve champion: J. Burgess's Adcote Butterfly Beau. Shornhorn cow: late C. E. McDougall Estate's Lyndhurst Duchess of Ettrick. Reserve champion: J. Burgess's Golden Bessie 7th.

DAIRY BREEDS.

Ayrshires.

(Judge, Mr. G. L. Wilson.)

Cow, 5 years and over, in milk: J. Holmes's Belle of Longlands 1, J. Holmes's Blanche of Longlands 2, J. C. Mann's Beryl of Crescent Farm 3, J. Holmes's Blonde of Longlands 4. Cow, 4 and under 5 years, in milk: J. Holmes's Blanche 2nd of Longlands 1, J. Holmes's Narelle of Longlands 2. Cow, 3 and under 4 years, in milk: Fenerriegal Bros.' Tina of Merivale 1, J. Holmes's Ladybird 2nd of Longlands 2. Heifer, 2 and under 3 years, in milk: J. Holmes's Promise of Longlands 1, Anderson Bros.' Honor Paget of Fairview 2, J. Holmes's Tamar of Longlands 3. Cow, 4 years and over, in calf 6 months: J. Holmes's Thelma of Longlands 1, J. C. Mann's Beryl's Pride of Crescent Farm 2, P. Bell's Agnes of Fairfield 3, J. Holmes's Peggy 2nd of Longlands 4. Heifer, 1 and under 2 years, in milk: J. Holmes's Betty of Longlands. Heifer, 2 and under 3 years, in calf: J. C. Mann's Snow Queen of Crescent Farm 1, J. Holmes's Margaret of Longlands 2, L. H. Paten's Loraine 3rd of Jeyandee 3. Heifer, 1 and under 2 years, dry: J. Holmes's Bella 2nd of Longlands 1, J. C. Mann's Heather Spray of Crescent Farm 2, J. C. Mann's Clarice 2nd of Crescent Farm 3. Heifer calf, 6 and under 12 months: J. Holmes's Tillie of Longlands 1, J. C. Mann's Beryl's Pearl of Crescent Farm 2, P. Bell's Tidy of Bellevue 3. Exhibitors' group: J. Holmes 1, J. C. Mann 2. Sires' Progeny Stakes group: J. Holmes 1 and 2. Bull, 4 years and over: P. Bell's Prince Roy of Longlands 1, R. G. Bell's Jamie of Fairfield 2, J. Holmes's Prince Roy of Fairview 3. Bull, 3 and under 4 years: J. H. Fairfax's Paladin of Marinya 1, F. A. Stimpson's Duncan of Fairview 2, L. H. Paten's Premier of Longlands 3. Bull, 2 and under 3 years: J. T. Knowles' Brian of Longlands 1, F. A. Stimpson's Brother of Fairfield 2, Prisons' Department, St. Helena Lord 3. Bull, 1 and under 2 years: L. H. Paten's Premier of Jeyandee 1, Anderson Bros.' Jeanette's Masterpiece of Fairview 2, R. G. Bell's Roy of Oaklands 3, J. H. Fairfax's Luminous of Marinya 4. Bull calf, 6 and under 12 months: P. Bell's Nero of Bellevue 1, J. C. Mann's Playboy of Crescent Farm 2, J. Holmes's Gay Lad of Longlands 3. Sire and his progeny, group: P. Bell's Prince Roy of Longlands 1, J. Holmes's Prince Roy of Fairview 2.

Children's Calf Class.

Heifer calf, 6 and under 12 months: W. Ryan's Gay Girl of Dingley Dell. Derby Sweepstakes: Anderson Bros.' Honor Paget of Fairview 1, Smith Bros.' Koolpari Joy 2. Bull calf, 6 and under 12 months: D. Paten's Promise of Jeyandee 1, M. Paten's Moreton of Jeyandee 2.

Guernseys.

(Judge, Mr. W. Carter.)

Cow, 3 years and over, in milk: Jackson and Schofield's Ivy II. 1, A. Cooke's Shamrock VI. 2, Jackson and Schofield's Wingrave 3. Heifer, under 3 years, in milk: Jackson and Schofield's Eva of Bexley 1, A. Cooke's Desdemona of Kelvin 2, A. Cooke's Ninnamurra Olga 3. Cow, 3 years and over, in calf 6 months: Jackson and Schofield's Irene 1, Jackson and Schofield's Trixie II. 2, A. Cooke's Fashion of Boorie 3. Heifer, 2 and under 3 years: Jackson and Schofield's Evelyn of Bexley. Heifer, 1 and under 2 years: Jackson and Schofield's Ivy IV. 1, A. Cooke's Shamrock's Lovely 2, Jackson and Schofield's Golden Primrose 3. Heifer calf, 6 and under 12 months: Jackson and Schofield's Ivy V. 1, A. Cooke's Diana's Vanity 2. Bull, 3 years and over: A. E. Gillespie's Moonstone 1, Jackson and Schofield's Montrose Sequel 2, A. Cooke's Victor of Wollongbar 3. Bull, 2 and under 3 years: A. E. Gillespie's Captain of Bexley 1, Jackson and Schofield's Donnington Boy 2. Bull calf, 6 and under 12 months: A. Cooke's Fashion's Luck 1, Jackson and Schofield's Pet Sequel 2. Bull, 1 and under 2 years: Jackson and Schofield's Golden Cherub 1, Jackson and Schofield's Dolly Sequel 2. Exhibitor's group: Jackson and Schofield 1, A. Cooke 2.

Friesians.

(Judge, Mr. J. Pritchard.)

Cow, 4 years and over, in milk: G. Newman's Belle of Friesland II. 1, Brown Bros.' Cornucopia Doral Wayne II. 2, Brown Bros.' S.C.P. Korndyke Lottie Canary 3. Cow, 3 and under 4 years, in milk: Grindles Ltd. Hamburg II. of St. Alban 1, Brown Bros.' Mooroombin Pentiac Girl 2. Heifer, 2 and under 3 years, in milk: E. J. Wecker's Lovely of Glen Carmel 1, Grindels Ltd. Cluny II. of Wolston 2, Brown Bros.' Mooroombin Pandora VI. 3. Cow, 3 years or over, in calf 6 months: P. P. Falt's Dairy Maid 1, Nestle and Anglo-Swiss Condensed Milk Company, Ltd., Duchess III. of Nestles 2, P. P. Falt's Ongame Riverdale Netherland 3, Grindles Ltd.

Lady Creamelle 4. Heifer, 2 and under 3 years, dry: Brown Bros.' Mooroombin Pandora V. 1, Miss W. M. Falt's Queenie of Ryfield 2, C. Behrendorff's Fanny II. of Inavall 3. Heifer, 1 and under 2 years: Brown Bros.' Mooroombin Maud 1, F. I. Connell's Patti of St. Gwithian 2, E. J. Wecker's Brookdale Cadillac Queen 3, Brown Bros.' Mooroombin Bowen 4. Bull, 1 and under 2 years: E. J. Wecker's Netherlands Prince Colantha 1, Grindles Ltd. Magnus of St. Athan 2, F. I. Connell's Ithaca Model Knight 3. Bull calf, 6 and under 12 months: A. O. Sturmer's Ideal of Inavale 1, E. J. Connell's Pabst Model of Larkhall 2, C. Behrendorff's Lady's Pride of Inavale 3. Sire and progeny: E. J. Wecker's Prince Colantha Oaklea 1, Brown Bros.' Pabst Arrowhead 2. Exhibitor's group: G. Newman 1, Brown Bros. 2. Sires Progeny Stakes, group: E. J. Wecker 1, Brown Bros. 2, R. S. Alexander 3.

Children's Calf Class.

Heifer calf, 6 and under 12 months: G. H. Jorgensen's Tiny of Ryfield 1, W. Wecker's Maida Colantha 2nd 2. Bull calf, 6 and under 12 months: W. Wecker's Colantha Johanna Lad.

Jerseys.

(Judge, Mr. B. Anderson.)

Cow, 5 years and over, in milk: E. Burton and Sons' Oxford Golden Buttercup 1, J. G. Henderson's Oxford Girl 2, W. Spresser's Carnation Lucy 3, J. Williams's Carlyle Lady Lynn 4, W. and D. Carr's Carlyle Larkspur 5. Cow, 4 and under 5 years, in milk: H. H. Domin's Oxford Golden Rosette 1, J. Duffield and Sons' Goldie of Brook Lodge 2, W. Spresser's Carnation Golden Dewdrop 3. Cow, 3 and under 4 years, in milk: E. Burton and Sons' Oxford Noble Buttercup 1, J. Collins's Queen of Calton 2, W. W. Mallet's Sultares Pride of Burnleigh 3. Heifer, 2 and under 3 years, in milk: W. Spresser's Carnation Golden Princess 1, J. Sinnamon's Trinity Coral 2, E. Burton and Sons' Oxford Noble Beauty 3, J. Duffield and Sons' Silver Spray of Brook Lodge 4. Heifer, 1 and under 2 years, in milk: W. Spresser's Carnation Butterfly 1, W. Spresser's Carnation Lucy's Queen 2, E. Burton and Sons's Oxford Madeira 3, J. Sinnamon's Trinity Firefly 4. Cow, 4 years and over, and in calf 6 months: W Spresser's Carnation Silver Spray 1, W. Spresser's Carnation Buttercup 2, J. Duffield and Sons' Talgai Creole 3, E. Burton and Sons' Oxford Buttercup IV. 4, W. and D. Carr's Carlyle Larksur II. 5. Cow, 3 and under 4 years, and in calf 6 months: E. Burton and Sons' Oxford Noble Belle 1, W. and D. Carr's Carlyle Larksur III. 2, J. Collins's Trinity Golden Star 3. Heifer, 2 and under 3 years, in calf: W. and D. Carr's Melba 1, W. Spresser's Carnation Little Lucy 2, F. G. Burton's Yimmin Gloria II. 3. Cow, or heifer, Australian bred: E. Burton and Sons 1, J. G. Henderson's Oxford Girl 2, W. Spresser 3, J. Williams's Carlyle Lady Lynn 4. Heifer, 1 and under 2 years, dry: R. J. Hay's Kenmore Songstress 1, E. Burton and Sons' Oxford Clementine 2, A. W. Kibble's White Socks of Woodstock 3, E. McHay's Kenmore Princess 4. Heifer calf, 6 and under 12 months: W. Spresser's Carnation Lucy's Locket 1, J. Sinnamon's Trinity Wallflower 2, W. Spresser's Carnation Lady Bell 3, J. Sinnamon's Trinity Noble Crocus 4, J. Sinnamon's Trinity Sunset 5. Cow and her progeny: E. Burton and Sons' Oxford Golden Buttercup 1, W. Spresser's Carnation Buttercup 2. Sire and his progeny: J. Sinnamon 1, W. Spresser's Carnation Prince 2, E. Burton and Sons' Werribee Clementine's King 3. Exhibitor's group: W. Spresser 1, E. Burton and Sons 2, J. Sinnamon 3. Sires' Progeny Stakes, group: W. Spresser 1 and 2. Bull, 4 years and over: J. Todd's Trinity Alfriston Duke 1, W. Spresser's Carnation Prince 2, W. and D. Carr's Empire of Woodsire 3, J. Sinnamon's Ginger Duke 4. Bull, 3 and under 4 years: J. Sinnamon's Lord Ettrey of Banyule 1, E. Burton and Sons' Werribee Clementine's King 2, R. A. Howell's Apollo 3. Bull, 2 and under 3 years: T. A. Petherick's Trinity Officer 1, J. Collins's Retford K.C. 2, T. Muller's Oxford Palatine's Butter Boy 3. J Sinnamon's Trinity Ginger Fox 4. Bull, 1 and under 2 years: J. Sinnamon's Trinity Fairy Boy 1, H. F. Neil's Carnation Scots Noble 2, A. W. Kibble's Manager of Woodstock 3, W. W. Mallet's Darby 4. Bull calf, 6 and under 12 months: E. Burton and Sons' Oxford Meatboy 1, J. Sinnamon's Trinity Governor 2, W. and D. Carr's Carlyle Empire 3, E. Burton and Sons' Oxford Brighton King 4.

Children's Calf Class.

Heifer calf, 6 and under 12 months: T. J. Mullen's Norwood Golden Queen 1, E. McKay's Kenmore Duchess 2, W. F. Evans's Angelface of Morago 3, P. Evans's Nona of Morago 4. Bull calf, 6 and under 12 months: A. Mullen's Norwood Golden Boy 1, G. Kibble's Prince of Woodstock 2, W. F. Evans's Mary's Valentine of Morago 3.

Illawarra Milking Shorthorns.

(Judges, Messrs. W. Fredericks and J. Young.)

Cow, 4 and under 5 years, in milk: Macfarlane Bros.' Vido 26th of Darbalara 1, W. Middleton's Buttercup 2nd of Dunmore 2, B. O'Connor's Lady James of Casey Camp 3. Cow, 5 years and over, in milk: A. Pickel's Lavender of Blacklands 1, B. O'Connor's Elsie 4th of Oakvale 2, A. Pickel's Model of Blacklands 3, S. Mitchell's Model of Rosenthal 4. Cow, 3 and under 4 years, in milk: F. O. Hayter's Fussy 3rd of Spurfield 1, W. M. Krause's Dolphin of Allawat 2, W. Middleton's Mountside Plum 3. Heifer, 2 and under 3 years, in milk: Macfarlane Bros.' Bella 5th of Kilbirnie 1, J. A. Robertson's Hope of Blacklands 2, F. O. Hayter's Daphne 2nd of Spurfield 3. Cow, 4 years and over, in calf 6 months, or dry: B. O'Connor's Rosebud 2nd of Greyleigh 1, A. Pickel's Jean 5th of Blacklands 2, B. O'Connor's Dahlia 2nd of Hill View 3, S. Mitchell's Fuchsia of Rosenthal 4. Cow, 3 and under 4 years, in calf 6 months: G. E. J. Chaseling's Daphne of Breendah 1, Scott Bros.' Jean 3rd of Abbotsford 2, R. Mears's Norah 3rd of Morden 3. Heifer calf, 6 and under 12 month: E. J. Wecker's Queenie De Kol 2nd A. Glen Carmal 1, Nestle and Anglo-Swiss Condensed Milk Company's Malvinia of Nestles 2, A. Aitchison's Countess of Cadzou 3. Bull, 4 years and over: G. Newman's Pied Rock 1, Grindles Ltd. Black Prince 2, E. J. Wecker's Prince Colantha Oaklea 3. Bull, 3 and under 4 years: Brown Bros.' Mooroombin Susie Lyons Echo 1, R. S. Alexander's Sir Cluny Colantha 2. Bull, 2 and under 3 years: G. P. Falt's King Hector of Glen Carmal 1, D. C. Pryce's Dutch George of Ithaca 2, A. Aitchison's Pontiac of St. Gwithian 3. Heifer, 2 and under 3 years, dry: Scott Bros.' Golden of Waverley 1, R. Mears's Freda II. of Morden 2, A. Pickel's Daphne III. of Hillview 3. Heifer, 1 and under 3 years: B. O'Connor's Lady Jean of Oakvale 1, C. Keys's Jewel of Sunnymeade 2, R. Mears's Plumcot III. of Cosey Camp 3. Heifer calf, 6 and under 12 months: F. O. Hayter's Stately VI. of Spurfield 1, B. O'Connor's Maud of Oakvale 2, B. O'Connor's Calm X. of Oakvale 3. Bull, 4 years and over: G. E. J. Chaseling's Thor of Greyleigh 1, Nestle and Anglo-Swiss Condensed Milk Company's Royal George 2nd of Nestles 2, F. O. Hayter's Sovereign of Warden 3. Bull, 3 and under 4 years: J. W. Scott's Warrior 1st of Hazeldean 1, S. A. Hooper's Lee-Metford of Waterview 2, Macfarlane Bros.' Mowbray 2nd of Kilburnie 3. Bull, 2 and under 3 years: B. O'Connor's Brilliant of Oakvale 1, D. Cahill's Plucky of Spurfield 2, J. Verrall's Peter of Frenchview 3. Bull, 1 and under 2 years: B. O'Connor's Sterling of Oakvale 1, P. Moore's Briton of Sunnyside 2, A. Slade's Larry of Dualwon 3. Bull calf, 6 and under 12 months: W. Middleton's Gay Prince of Bri Bri 1, R. Mears's Nelson of Moreden 2, D. McDougall's Starlight of Sherwood and C. S. Elliott's 6th Knight of the Cedars 3. Sire and his progeny group: G. E. J. Chaseling's Thor of Greyleigh 1, F. O. Hayter's Sovereign of Warden 2, B. O'Connor's Charms Duhalow of Oakvale 3. Exhibitor's group: B. O'Connor 1, A. Pickels 2, G. E. J. Chaseling 3. Sire's Progeny Stakes group: A. Pickels 1, B. O'Connor 2.

Champions.

Illawarra Milking Shorthorn bull: G. E. J. Chaseling's Thor of Greyleigh. Reserve Champion: Nestle and Anglo-Swiss Condensed Milk Company's Royal George 2nd of Nestles.

Children's Calf Class.

Heifer calf, 6 and under 12 months: J. Phillips's Beauty 3rd of Sunnyview 1, H. Pickels's Violet 5th of Blacklands 2, L. Dickfos's Nessie of Normanby 3. Bull calf, 6 and under 12 months: E. J. O'Connor's Lord Clare of Oakvale 1, J. Phillips's Charmer of Sunnyview 2.

Champions.

Guernsey, cow or heifer: Jackson and Schofield's Ivy II. Reserve champion: A. Cooke's Shamrock VI. Bull: A. E. Gillespie's Moonstone. Reserve champion: Jackson and Schofield's Montrose Sequel. Ayrshire cow or heifer: J. Holmes's Belle of Longlands. Reserve champion: J. Holmes's Blanche of Longlands. Bull: J. H. Fairfax's Paladin of Marinya. Reserve champion: P. Bell's Prince Roy of Longlands. Fresian, cow or heifer: P. P. Falt's Dairymaid. Reserve champion: Nestle and Anglo-Swiss Condensed Milk Company's Duchess III. of Nestles. Illawarra Milking Shorthorn, cow or heifer, of Queensland: B. O'Connor's Rosebud II. of Greyleigh. Reserve champion: A. Pickels's Lavender of Blacklands. Champion Fresian bull of Queensland: G. Newman's Pied Rock. Reserve champion: Brown Bros.' Mooroombin Susie Lyons Echo. Champion Jersey bull of Queensland; J. Sinnamon's Lord Eltrey of Banyule. Reserve champion. J. Todd's Trinity Alfristan Duke.

SHEEP.

Fat Sheep.

(Judge, Mr. W. Trout.)

Pen of 5 merino wethers, over 50 lb.: C. J. Chandler 1, T. J. Webster 2. Under 50 lb.: W. B. Peel 1, H. Roth 2. Pen, suitable for freezing: E. J. McDonough 1, H. Roth 2. Pen, suitable for butcher's trade: E. J. McDonough 1, D. W. McLeod 2. Pen, judge for commercial value, mutton, and wool: W. K. Thomson 1, C. J. Chandler 2. Pen of 5 merino ewes, suitable for butcher's trade: C. J. Chandler 1, W. H. Chandler 2. Pen of lambs: C. J. Chandler 1, E. J. McDonough 2. Pen of crossbred wethers, 70 lb. and over: S. E. Pullen 1, S. H. Grinsell 2. Pen, suitable for butcher's trade: W. L. Stirling 1, D. W. McLeod 2. Pen, suitable for freezing: W. L. Stirling 1, D. W. McLeod 2. Pen, irrespective of weight: D. W. McLeod. Pen, most suitable for freezing for export: C. J. Chandler. Pen, crossbred ewes, suitable for butcher's trade: S. H. Grinsell 1, J. H. Fairfax 2. Pen, crossbred lambs, suitable for export as freezers: W. L. Stirling 1, J. Nicholson 2. Pen, crossbred lambs, judged regardless of weight: S. E. Pullen 1, M. Redman 2. Pen of lambs, suitable for freezing: S. E. Pullen 1, J. H. Fairfax 2. Heaviest crossbred wether: T. Holmes 1 and 2. Heaviest merino wether: C. J. Chandler 1 and 2. Heaviest crossbred ewe: W. K. Thomson 1, S. E. Pullen 2. Heaviest merino ewe: C. J. Chandler 1, J. Nicholson 2.

Stud Sheep—Unhoused.

Strong-woolled merinos: Ram, 3 years and over: R. P. Lord. Ram, 2 and under 3 years: R. P. Lord. Ram, under 2 years: R. P. Lord 1 and 2. Ewe, 3 years and over: R. P. Lord 1 and 2. Ewe, 2 and under 3 years: R. P. Lord. Ewe, under 2 years: R. P. Lord 1 and 2. Medium-woolled merinos: Ram, 3 years and over: R. P. Lord. Ram, 2 and under 3 years: R. P. Lord. Ram, under 2 years: R. P. Lord 1 and 2. Ewe, 3 years and over: R. P. Lord. Ewe, 2 and under 3 years: R. P. Lord. Ewe, under 2 years: R. P. Lord 1 and 2. Fine-woolled merinos: Ram, 3 years and over: R. P. Lord. Ram, 2 and under 3 years: R. P. Lord. Ram, under 2 years: R. P. Lord 1 and 2. Ewe, 3 years and over: R. P. Lord. Ewe, under 2 years: R. P. Lord. Queensland-bred strong-woolled merinos: Ram, 3 years and over: R. P. Lord. Ram, 2 and under 3 years: R. P. Lord 1 and 2. Ram, under 2 years: R. P. Lord 1 and 2. Ewe, 3 years and over: R. P. Lord 1 and 2. Ewe, 2 and under 3 years: R. P. Lord 1 and 2. Ewe, under 2 years: R. P. Lord 1 and 2. Medium-woolled merinos: Ram, 3 years and over: R. P. Lord. Ram, 2 and under 3 years: R. P. Lord 1 and 2. Ram, under 2 years: R. P. Lord 1 and 2. Ewe, 3 years and over: R. P. Lord 1 and 2. Ewe, 2 and under 3 years: R. P. Lord. Ewe, under 2 years: R. P. Lord 1 and 2. Fine-woolled merinos: Ram, 3 years and over: R. P. Lord. Ram, 2 and under 3 years: R. P. Lord. Ram, under 2 years: R. P. Lord 1 and 2. Ewe, 3 years and over: R. P. Lord 1 and 2. Ewe, under 2 years: R. P. Lord 1 and 2.

Champions.

Strong-woolled merinos: Ram, unhoused: R. P. Lord. Reserve champion: R. P. Lord. Ewe: R. P. Lord. Reserve champion: R. P. Lord. Medium-woolled merino ram: R. P. Lord. Reserve champion ewe: R. P. Lord. Ewe: R. P. Lord. Reserve champion: R. P. Lord. Fine-woolled merino ram: R. P. Lord. Reserve champion: R. P. Lord. Ewe: R. P. Lord. Reserve champion ewe: R. P. Lord. Queensland-bred: Strong-woolled merino ram: R. P. Lord. Reserve champion: R. P. Lord. Ewe: R. P. Lord. Reserve champion ewe: R. P. Lord. Medium-woolled merino ram: R. P. Lord. Reserve champion: R. P. Lord. Ewe: R. P. Lord. Reserve champion ewe: R. P. Lord. Fine-woolled merino ram: R. P. Lord. Reserve champion: R. P. Lord. Ewe: R. P. Lord. Reserve champion ewe: R. P. Lord. Queensland-bred ram: R. P. Lord. Queensland-bred ewe: R. P. Lord.

Grand Champions.

Merino ram: R. P. Lord. Reserve grand champion: R. P. Lord.

HORSES.

Stud Horses and Pacers.

(Judge, Mr. A. D. Playfair.)

Stallion, 6 years and over: A. R. Carr's Ribbonmont 1, W. H. Smith's Sparkling Jewel 2. Stallion, 5 years and over: A. E. Higgins's Ravenswood 1, H. H. Dunkley's Marvin Cole 2. Colt, 2 years: H. A. Strong's Ravensfield. Mare, 5 years and over: S. C. Reeve's Black Ribbon 1, A. J. Schmeig's Golden Queen 2. Filly, 3 years: C. Glindeman's Silver Bells. Filly, 2 years: G. Packer's Eileen Pronto 1, T. R. Wuiske's Dolly Wilkes 2.

Champions.

Trotting stallion: A. R. Carr's Ribbonmont. Reserve champion: W. H. Smith's Sparkling Jewel. Trotting mare: S. C. Reeve's Black Ribbon. Reserve champion: A. J. Schmeig's Golden Queen.

Stud Ponies.

(Judge, Mr. J. J. Fanning.)

Stallions, best adapted for getting harness ponies, any age, driven, not exceeding 14 hands: J. A. Rudd's Hafrod Sensation 1, H. E. Cox's Commandant 2. Not exceeding 14 hands, led: J. A. Rudd's Hafrod Sensation 1, H. E. Cox's Commandant 2. Not exceeding 13 hands: H. Arndt's Black Pastel. Not exceeding 12 hands: J. Young's Ivanhoe II. 1, H. Arndt's Black Pastel 2.

Stallions.

Best adapted for getting saddle ponies, any age, not exceeding 14 hands: E. Pocock's Ludo. Not exceeding 13 hands: E. Pocock's Ludo 1, J. T. Jackson's Dinarth Lad 2. Not exceeding 12 hands: W. Booth's Micky.

Welsh Ponies.

Stallion, any age, not exceeding 14 hands: J. A. Rudd's Hafrod Sensation 1, J. T. Jackson's Dinarth Lad 2.

Pony Mares.

Brood mare, any age, not exceeding 13 hands: Miss A. Mullen's Gold Top 1, A. E. Johnston's Peace 2. Any age, not exceeding 12 hands: W. H. Riching's Lady Model 1, A. T. Noyes's Banglet 2. Brood mare, any age, not exceeding 14 hands: L. Dobon's Llew Lass 1, R. E. Pickels's Dixie 2.

Champions.

Pony stallion, best adapted for getting harness ponies: J. A. Rudd's Hafrod Sensation. Reserve champion: H. E. Cox's Commandant. Pony mare: Miss A. Mullen's Gold Top. Reserve champion: L. Dobon's Llew Lass. Pony stallion, best adapted for getting saddle ponies: E. Pocock's Ludo. Reserve champion: W. Booth's Micky. Welsh pony, stallion: J. A. Rudd's Hafrod Sensation.

Thoroughbreds.

(Judge, Mr. F. White.)

Stallion, 4 years and over, adapted for improving racing stock: M. F. Yore's Polybius 1, J. B. Shannon's Fairy Bob 2, T. Jenning's Amberdown 3. Four years and over, suitable for getting military horses: T. Jenning's Amberdown 1, J. B. Shannon's Fairy Bob 2. Brood mare: M. J. MacGinley's Lady Cyrus.

Remount Mares.

Mare, suited for producing remounts, hacks, hunters: J. P. Hassall's Flip 1, E. J. Stanfield's Edna Wilkes 2, R. E. Pickels's Charm 3.

Champions.

Thoroughbred stallion: M. F. Yore's Polybius. Reserve champion: J. B. Shannon's Fairy Bob. Thoroughbred mare: M. J. MacGinley's Lady Cyrus.

Clydesdales.

(Judge, Mr. J. Sprott.)

Stallion, 5 years and over: A. T. Creswick's Windermere Bay Kennedy 1, J. H. Kilvington's Pride of Clenore 2, G. P. Hohenhan's Square Dale 3. Stallion, 4 years: G. N. Watson's Wigtown Boy 2. Stallion, 3 years: A. T. Creswick's Duncan 1, A. T. Creswick's Macgregor 2. Colt, 2 years: Queensland Agricultural High School and College's Prosfield 1, R. Drew's Craigie Willie 2. Colt, 1 year: G. W. Watson's Sparkling Blaze 2. Mares, 5 years and over: A. T. Creswick's Lady Windermere 1, G. Elliot's Lady Meta 2, J. H. Kilvington's Myrtle 3. Brood mare: G. Elliot's Lady Cellus 1, J. S. Kilvington's Winsome Baroness 2. Filly, 3 years: R. Drew's Lady Maud 1, A. T. Creswick's Florrie 2. Filly, 2 years: A. T. Creswick's Agnes. Filly, 1 year: P. H. Kilvington's Charmer.

Champions.

Draught stallion: A. T. Creswick's Windermere Bay Kennedy. Reserve champion: A. T. Creswick's Duncan. Draught mare: G. Elliot's Lady Cellus. Reserve champion: A. T. Creswick's Lady Windermere.

SWINE.

Berkshires.

(Judge, Mr. A. F. Grey.)

Boar, 2 years and over: W. J. Warburton's Brentwood Star 1, M. Porter and Sons' Rose Loch Jordy 2. Boar, 1 and under 2 years: Queensland Agricultural High School and College's Murray Glen Star 1, L. S. Ducat's Waterview Don 2. Boar, 6 and under 12 months: A. Macfarlane's Frampton Jack 1, Queensland Agricultural High School and College's Gatton Jo 2. Boar, under 6 months: W. J. Warburton's Playboy 1, W. J. Warburton's Centurion 2. Pen of three boars, under 16 weeks: W. J. Warburton. Boar and progeny: W. J. Warburton's Brentwood Star. Sow, 2 years and over: Queensland Agricultural High School and College's Killarney Stella 1, W. J. Warburton's Northgate Patience 3rd 2. One and under 2 years: L. S. Ducat's Waterview Trixie 1, L. S. Ducat's Waterview Purity 2. Six and under 12 months: L. S. Ducat's Waterview Jewel 1, L. S. Ducat's Brentwood Lorna 2. Under 6 months: Queensland Agricultural High School and College's Gatton Cremorne Flurry 1, L. S. Ducat's Waterview Enid 2. Pen of three sows, under 16 weeks: L. Williams 1, W. J. Warburton 2. Sow, any age, in milk, with litter: W. J. Warburton's Northgate Belle 2nd.

Champions.

Queensland Agricultural High School and College's Murray Glen Star. Reserve champion: W. J. Warburton's Brentwood Star. Sow: Queensland Agricultural High School and College's Killarney Stella. Reserve champion: W. J. Warburton's Northgate Belle 2nd.

Yorkshires.

Boar, 2 years and over: W. J. Warburton's Newington Adventurer. Boar, 1 and under 2 years: W. J. Warburton's Newington Adventurer. Boar, 6 and under 12 months: W. J. Warburton's Douglass 1, W. J. Warburton's Ben 2. Boar, under 6 months: W. J. Warburton's Ted. Pen of 3 boars, under 16 weeks: W. J. Warburton. Boar and his progeny: W. J. Warburton's Newington Adventurer. Sow, 2 years and over: W. J. Warburton's Northgate Ruth. Sow, 1 and under 2 years: W. J. Warburton's Northgate Baroness 1, W. J. Warburton's Northgate Fairy 2. Sow, 6 and under 12 months: W. J. Warburton's Northgate Molly. Sow, under 6 months: W. J. Warburton's Gay Girl. Pen of 3 sows, under 16 weeks: W. J. Warburton. Sow, any age, in milk, with litter: W. J. Warburton.

Tamworths.

Boar, 2 years and over: J. H. Whittaker's Sandy Macqueen. Boar, 1 and under 2 years: A. N. White's Blakeney Romeo 1, Queensland Agricultural High School and College's Danesboro Fred 2. Boar, 6 and under 12 months: S. A. Farley's Broxburn Promise 1, Queensland Agricultural High School and College's Blakeney Rex 2. Boar, under 6 months: Queensland Agricultural High School and College's Gatton Chatham 1, J. H. Whittaker's Broxburn Chatham 2. Pen of 3 boars, under 16 weeks: A. N. White 1, J. H. Whittaker 2. Boar and his progeny: J. H. Whittaker's Sandy Macqueen 1, A. N. White's Blakeney Romeo 2. Sow, 2 years and over: Queensland Agricultural High School and College's Rosebank Rosy Queen 1, J. H. Whittaker's Manning Ruby 2. Sow, 1 and under 2 years: A. N. White's Blakeney Ribbons 1, Queensland Agricultural High School and College 2. Sow, 6 and under 12 months: A. N. White's Blakeney Rona 1, A. N. White's Blakeney Rene 2. Sow, under 6 months: Queensland Agricultural High School and College's Gatton Lady 1, J. H. Whittaker's Broxburn Lizzie 2. Pen of 3 sows, under 16 weeks: A. N. White 1, J. H. Whittaker 2. Sow any age, in milk, with litter: J. H. Whittaker's Broxburn Lass 1, J. H. Whittaker's Broxburn Mayflower 2.

Poland-Chinas.

Boar, 1 and under 2 years. Yalden Bros.' Baynes Wood Judge 1, A. W. White's Blakeney Rebel 2. Boar, 6 and under 12 months: A. W. White's Blakeney Royal 1, J. H. Whittaker's Broxburn Liberator 2. Boar, under 6 months: Yalden Bros. 1 and 2. Sow, 2 years and over: Queensland Agricultural High School and College's Danesboro Winnie. Sow, 6 and under 12 months: A. W. White's Blakeney Revenue 1, A. W. White's Blakeney Rapture 2. Sow, under 6 months: J. H. Whitaker's Broxburn Playmate 1, A. W. White's Blakeney Renown 2.

Duroc-Jerseys.

Boar, any age: Brown Bros.' Mooroombin Chieftain. Sow any age: Brown Bros.' Mooroombin Jewel 1, Brown Bros.' Mooroombin Belle 2.

FRUIT.

Oranges.

(Judge: Mr. M. Finlayson.)

Valentia: R. A. Ulcoq 1, P. G. Collins 2. Mediterranean, sweet: H. L. Roach. Sabina: H. L. Roach 1, J. T. Tennent 2. Washington navel: H. L. Roach 1, A. R. Ulcoq 2. Dunning's navel: R. A. Ulcoq 2. Seedling: A. R. Ulcoq 1, J. Steggall 2. Mandarins, Emperor of Canton: R. A. Ulcoq 1, H. L. Roach 2. Scarlet: J. Steggall 1, R. Dunlop 2. Glen Retreat: A. R. Ulcoq 1, J. Steggall 2. Any other variety: A. E. Vise 1, H. L. Roach 2. Seville: Mrs. R. P. Gale Shaddocks: A. E. Vise. Any new variety citrus fruits: H. L. Roach.

Lemons.

Any variety, uncured: M. M. Floyd 1, P. G. Collins 2. Suitable for peel: A. R. Ulcoq. Limes, Tahiti: A. E. Vise 1, J. T. Tennant 2.

Bananas.

Ladies' Fingers: A. E. Vise. Sugar: T. Coulston.

Pineapples.

Ripley Queen: H. Willmott. Rough leaf: P. C. Albury. Smooth leaf: A. E. Robinson 1, J. E. Renouf 2

Strawberries.

Aurie: J. C. Jackes 1, F. and E. Webber 2. Phenomenal: Lockett Bros. 1, E. W. Weller 2.

Cape Gooseberries.

J. C. Jackes.

Passion Fruit.

H. E. Bishop 1, J. S. Dunlop 2.

Pawpaws.

T Coulston 1, J. A. Carbine 2.

For Export.

Oranges, unwrapped: P. G. Collins 1, J. T. Tennent 2. Wrapped: J. T. Tennent 1, P. G. Collins 2. Lemons, cured and wrapped: R. A. Ulcoq 1 and special. Cavendish bananas: A. Martin 1, H. J. Digweed 2, J. J. Tannei 3. Pines, Ripley Queens: Lockett Bros. 1, H. Willmott 2. Smooth leaf: J. E. Renouf 1, A. E. Robinson 2.

FRUIT AND VEGETABLES.

The fruit and vegetable section was well worth a visit for several reasons, one of which is the wonderful capabilities of the so-called "tropical" areas. There were three district exhibits in vegetables—Linville (at the head of the Brisbane Valley), Rockhampton, and Bowen. The latter's display included similar vegetables to those grown in Linville, with the exception of cauliflowers, but in their place had the giant capsicum. Rockhampton had excellent samples of cauliflowers, cabbage, and English potatoes.

The display of individual exhibitors was not nearly up to the quality of the exhibits staged by the districts, which, perhaps may be taken as an example of the value of co-operative effort. The Central Queensland display took the eye immediately, and one noticed jack fruit, cumquats, and pineapples side by side with beautiful quality English strawberries. Truly it may be said that Queensland is a Queen State.

DISTRICT FRUIT EXHIBITS.

The following is the tabulated statement of points gained by the contestants in the district fruit exhibits:—

—	Bananas, 35.	Pineapples, 35.	Citrus, 35.	Custards, 10.	Papaws, 10.	Strawberries, 10.	Other fruits, 10.	Packing and grading, 35.	General display, 20.	Total, 200.
Palmwoods..	20	20	26	5	6	7	6	25	14	129
Redlands ..	9	28	20	10	7	10	9	22	12	127
Central Queensland	7	25	33	3	8	5	7	19	15	122
Cooran ..	25	16	..	..	6	2	6	9	6	70
Bowen ..	..	15	22	..	4	5	8	8	6	68

COTTON.

Plants, upland type:—

SCALE OF POINTS AND POINTS AWARDED.

—	Desirability of type, 20.	Fruitfulness, 20.	Uniformity of length of fibre, 15.	Uniformity of strength of fibre, 15.	Stormproof qualities, 10.	Degree of opening of bolls, 10.	Fauliness, 10.	Total, 100.
A. B. Cadell..	10	20	13	12	5	8	10	78
P. J. J. Kakebeeke.. ..	15	7	12	12	7	4	5	62

Matured open bolls of seed cotton, upland type:—

—	Weight of bolls, 20.	Uniformity of length of fibre, 20.	Uniformity of strength of fibre, 20.	Degree of opening of bolls, 20.	Drag of lint, 10.	Character of lint, 10.	Total, 100.
Mrs. W. Preston	17½	18	18	20	9½	10	93
B. Osmond	20	17	18	20	8½	9	92½
A. B. Cadell	20	17	17	20	8½	9	91½
R. Gibson	19½	16	16	20	8	8	87½
J. A. Preaulx	19	16	16	19	8	8	86
V. Bray	19½	15	15	18	8	7	82½
Queensland Acclimatisation Society	14	16	16	17	8	7	78
P. J. J. Kakebeeke	11	12	14	16	9	9½	71½

COTTON—*continued.*

Seed cotton, upland type :—

	Size of locks, 20.	Uniformity of length of fibre, 20.	Uniformity of strength of fibre, 20.	Drag of lint, 15.	Character of lint, 15.	Cleanliness, 10.	Total, 100.
Mrs. W. Preston	16½	19	19	15	14	10	93½
B. Osmond	19	17	18	13	13½	10	90½
L. Teis	20	19	15	12	12	10	88
Archie Chalmers	20	18	18	10	11	10	87
Alex. Chalmers	17	14	16	8	13	10	78
Queensland Acclimatisation Society	16	14	14	13	12	8	77
R. Gibson	16	13	13	13	12	9½	76½
A. B. Cadell	17	12	12	8	12	10	71
J. A. Preaulx	15	12	12	12	12	7	70
V. Bray	16	10	10	10	10	8	64
P. J. J. Kakebeeke	10	14	12	9	12	4	61

STATE CANNERY EXHIBIT.

The popularity of "State" jams may be judged by the fact that the sales to date exceed 7,000,000. The jams, it is pointed out, are made to a large extent from Queensland fruits, grown by ex-soldiers on the settlements created by the Queensland Government. In addition to the ordinary varieties of jams a speciality is made of marmalade, the product of the State Cannery being claimed to be equal to the best Scotch. The State tomato sauce is reported to be enjoying a considerable vogue right throughout the State. It is prepared from tomatoes grown on the soldiers' settlements in the Stanthorpe district, and has a flavour and piquancy distinctly its own. The sauce is packed in water-white octagonal-shaped bottles, with a screw top. The whole of the crop of pineapples grown on the Beerburrum settlement, the State Enterprises Department points out, is absorbed by the State Cannery. Evidence of the high quality of the preserved product is provided in the fact that the whole of the last summer pack was immediately disposed of to English and Canadian buyers, and large orders at satisfactory prices were forthcoming if further supplies had been available. Unfortunately, the season was a poor one for quantity. The winter pack promises to be ample for market requirements.

The Show exhibit of the Cannery was one of the most notable features of the Pavilion displays.

BARBED WIRE CARRIER.

A contributor to "Country Gentleman" states that by mounting a roll of barbed wire on a sled it can be stretched out more rapidly by one man than by any other way with two. The sled is made narrow, so that it will go through any place a horse can get through. A 1½-inch hole is bored through the floor at the rear end of the sled. A piece of ¾-inch gas pipe about 4 feet long is placed through the spool of wire and one end in the hole of the sled. The wire is fastened to the corner

post and the horse is driven along the line of fence. The operator drives with one hand and with the other hand holds the top of the pipe. By tilting the pipe forward it acts as a brake, and any tension desired can be obtained. By placing a 12 or 14-inch board, 2 feet long, on the rear of the sled and raising one end 2 or 3 inches, you will get about the right tension on the wire while unrolling. Boring a hole through this board and resting the end of the pipe on the floor underneath keeps the pipe from slipping down and catching on obstructions under the sled.

STUD PIGS AT THE BRISBANE SHOW.

EXCELLENT QUALITY STOCK EXHIBITED.

E. J. SHELTON, H.D.A., Instructor in Pig Raising.

The Pig Section at Brisbane Show this year was noted both for increased entries and for improved quality of the various animals exhibited. The Stud Pig Sales were also a record, the number of pigs sold being in excess of previous sales, and the prices generally were on a higher scale.

The stock purchased by the writer last Easter at the Sydney Show maintained their reputation in the show ring by securing four of the coveted championships, only in one case, that of the Tamworth boar, "Danesboro Fred," taking second place; in this case the boar referred to being beaten by that old champion "Sandy MacQueen," who also has won similar honours, both at former Brisbane Shows and at shows in the South.

Fig. 1.

A well-known prize winner, Mr. W. J. Warburton's "Newington Adventurer" 2090, affectionately known at the Show as "Old Warby's Yorkie Champion." Bred originally at Newington State Hospital, N.S.W., he has won prizes both at Sydney and Brisbane Royal National Shows and seems content to carry on for another Show or two yet. His photograph denotes contentment and satisfaction in the extreme.

The Berkshires were a very even lot, though, apart from the champions and prize winners, the younger stock did not show that characteristic type and regular colour marking so desirable in this breed. The entries were augmented by a trio of twelve weeks old Berkshires from the stud of Luke Williams, of Tasmania, but even these would have shown to more advantage had they been marked strictly in accordance with the high standard set by the Berkshire and Yorkshire Society in whose herd-books they were registered, as were most of the prize-winning stock in the several breeds. Colour markings, while only a "fancy" point, are of considerable importance, so important indeed that the Society propose refusing registration of all Berkshires not coming up to the standard as adopted by them, and as originally determined by the British Berkshire Society. Type, too, is important, many of the Berkshires exhibited being plain and unattractive. However, Mr. Williams's

pigs sold well, and he is to be congratulated, not only on having exhibited Tasmanian Berkshires at Brisbane, but on having travelled overland in order to be in attendance at the Centenary Celebrations, the Show, and the Stud Sales. He is the Federal General Council representative for Tasmania of the Berkshire and Yorkshire Society.

Dealing with the various prize winners, the male championship was annexed by "Murray Glen Star" 4969 (illustrated on page 69 of August "Agricultural Journal"), the champion prize winner at Sydney Show last April, and purchased there for Queensland Agricultural High School and College, Gatton. This boar has developed well, and should prove a very valuable addition to the stud at Gatton. The second prize boar in the same class was L. S. Ducat's "'Waterview Don" 5430, a well-known Northern Rivers, New South Wales, prize winner, and the second prize boar under six months old at Brisbane Show, 1923. Another boar in the same class was W. J. Warburton's "Northgate Prince," but he was unplaced.

"Murray Glen Star" had as a competitor in the finals W. J. Warburton's "Brentwood Star" 4373, a Sydney Show prize winner, who was awarded the reserve championship. His competitor in the two year old and over class was M. Porter and Son's "Rose Loch Jordy" 5852, who was placed second, but who a week later at Gympie Show came to his own, and annexed the champion ribbons presented by the Gympie Show Committee.

In the class Berkshire boar six months old and under twelve months, A. MacFarlane's "Frampton Jack" (Fig. 3, p. 235) romped home with first award. He was later purchased at 17 guineas to go to Kairi Stud Farm on the Atherton Tableland. The second prize went to "Gatton Joe," shown by Gatton College, and later purchased by Mr. F. Grau, of Atherton.

W. J. Warburton secured the several awards in the younger classes, as also first award for Berkshire boar and progeny, in which L. S. Ducat secured second place. The herd-book ribbon was awarded to the champion boar.

In Berkshire sows, Gatton College was again successful in securing the championship, this time with "Killarney Stella" 4249 (Fig. 2), the first prize sow with litter at last Sydney Show. She has made up into a very fine animal, and should be heard of again at future shows.

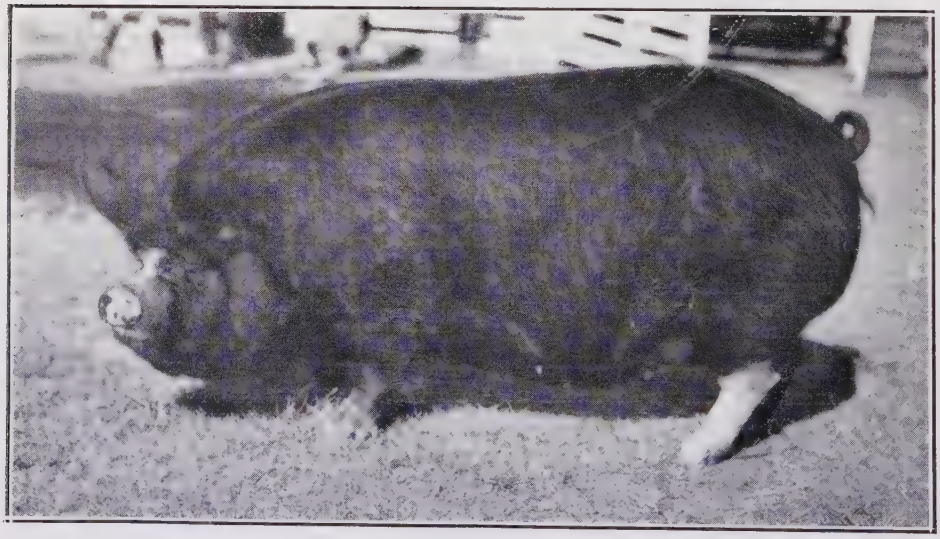


Fig. 2.

The Champion Berkshire Sow, Brisbane Show, 1924, "Killarney Stella" 4249, the property of Queensland Agricultural College and High School, Gatton. She also won first prize with litter, Sydney Show, 1924, and is an ideal type of breeding sow. Note the length and eveness of body and the fine skin and hair, characteristics which denote strength of constitution and robustness.

Her class mates were "Northgate Patience," a fine sow awarded reserve champion, and M. Porter and Son's "Rose Loch Model," who secured the female championship at Gympie Show, where Mr. Porter was the principal exhibitor in the pig section.

In Berkshire sows one year old and under two, L. S. Ducat, of Tweed Heads, New South Wales, secured both awards, his "Waterview Purity" 5219, being purchased for Kairi State Farm. Mr. Ducat also secured both awards in the class for sows under twelve months old, and in this class also the first prize sow, "Waterview Jewel," was purchased for Kairi. The second prize sow, "Brentwood Lorna," was of special merit. She was selected by Mr. R. G. Watson, on Mr. Ducat's behalf, at last Sydney Show, and should develop into a champion.

In the younger classes, the awards were as follows:—Sow under six months, Gatton College, "Cremorne Flurry" first; L. S. Ducat's "Waterview Ellie," second. The latter sow and three of her litter mates go to Kairi State Farm to help in increasing the Berkshire stud there.

In the class for pen of three Berkshire sows under sixteen weeks, Luke Williams, of Tasmania, was successful, and at the Stud Sales which followed these three sows, twelve weeks old, were sold as follows:—First pick to L. S. Ducat, of Tweed Heads, at 22 guineas, next lot to Goodna Hospital at 14 guineas, and the third sow to J. W. Handley, of Murphy's Creek, at 13½ guineas—record prices at Brisbane Show for pigs at this age.

W. J. Warburton, of Northgate, secured second award with neat attractive sows, while he also was successful in securing first award for sow and litter. The litter of eleven sold at an average of 6 guineas, and were much sought after. (Fig. 4.)

Fig. 4.

The first prize Berkshire sow and litter, Brisbane Show, 1924. A well-developed growing family that caught the buyer's eye and realised an average of six guineas a piece at the Stud Sales, which followed a day or two after the judging. The property of W. J. Warburton, of Northgate, who has had many champions.

The herd-book ribbon was awarded to Gatton College, with "Killarney Stella," the reserve champion being W. J. Warburton's "Northgate Patience."

Middle Yorkshires.

In this section, Mr. Warburton was the only competitor, and he secured the various awards, including both male and female champion and reserves. (Figs. 5

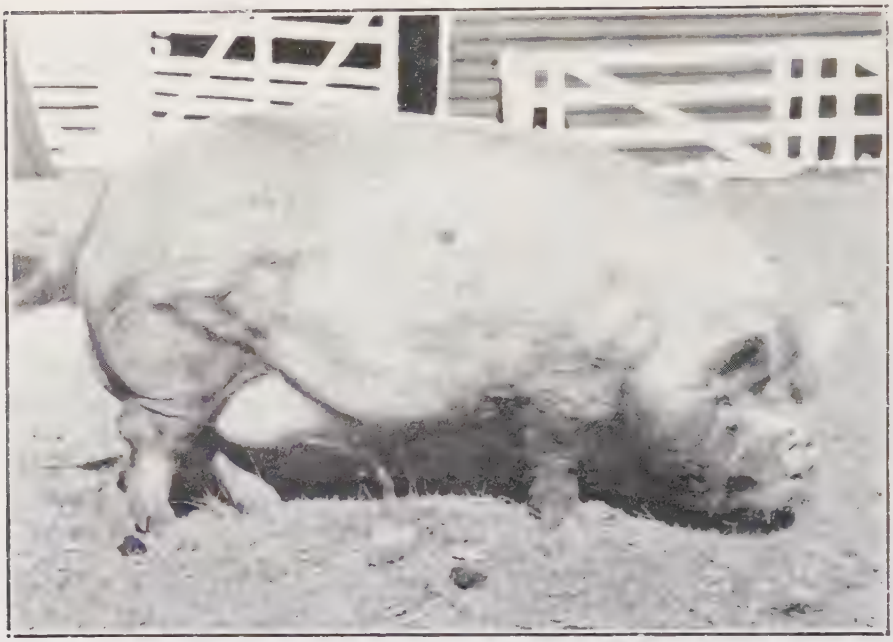


Fig. 5.

Another photograph of W. J. Warburton's Champion Yorkshire Boar, "Newington Adventurer" 2693. He shows great quality and is a reliable stock getter. His progeny have won numerous prizes.

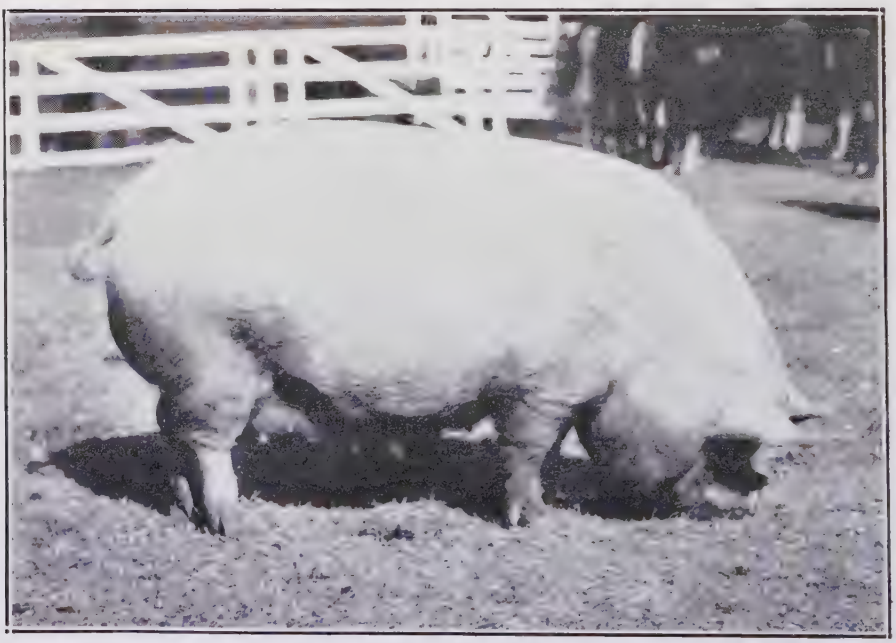


Fig. 6.

W. J. Warburton's Champion Middle Yorkshire Sow "Northgate Baroness 3rd," a wonderfully well developed matron, she has the maternal instincts strongly developed and has proved her worth in the production of healthy vigorous litters.

and 6.) He had some splendid-quality animals on show, and his efforts in keeping up the competition are to be commended, though, unfortunately, the Stud Sales do not show results, and it is evident that breeders generally are somewhat averse to introducing the white pigs. The Department also do not recommend them, except in cases where breeders have up-to-date accommodation, and can cater for the comfort of their pigs, so that they are protected both from the extremes of heat in the summer and severe weather during winter time.

Tamworths.

The Tamworth section was well filled; the quality was outstanding. The male championship was awarded to J. H. Whittaker's famous old "Sandy MacQueen," now past the allotted span (eight years) insofar as breeding is concerned The reserve champion went to S. A. Farley, who had recently purchased his exhibit from Mr. Whittaker. In his class, this boar had as his keenest competitor, Gatton's "Blakeney Rex" 332, a useful young animal also purchased at Sydney in April. In the two year old and under class, the first prize boar was A. N. White's "Blakeney Romeo," who afterwards became the property of Mr. Whittaker, whose stud is situated at Broxburn on the Darling Downs. Mr. White deserves special mention for having brought a big team from Penrith, New South Wales, a long overland journey by rail, and accomplished without loss, except in time, as it is a rather protracted journey by mixed train.

In the younger classes, the awards were fairly evenly divided amongst the breeders named.

The championships were awarded in the male classes:—Champion boar, J. H. Whittaker's "Sandy MacQueen" 97, and reserve champion, S. A. Farley's "Broxburn Promise."

In the female classes, competition was keener, and the quality even more pronounced than in the male classes. In aged sows, Gatton College secured the championship with an ex-Sydney champion, "Rosebank Rosy Queen" 113. (Fig. 7.)

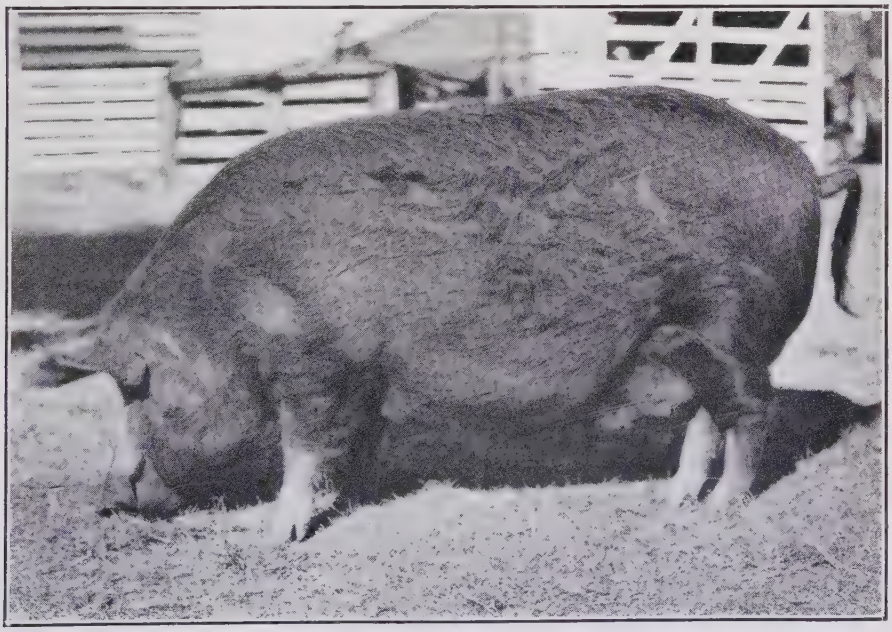


Fig. 7.

Champion Tamworth Sow, Brisbane Show, 1924. "Rosebank Rosy Queen" 113, the property of Queensland Agricultural High School and College, Gatton. She also won the Championship at Sydney Show, 1924, and was bred at the Hawkesbury Agricultural College, Richmond, N.S.W. Note the deep, compact, well-proportioned body and the fleshy ham.

She also had as a runner-up another Sydney prize winner, J. H. Whittaker's "Manning Ruby" 161, originally bred on the Manning River, New South Wales, by Fred. S. Martin. There were other excellent quality sows in this class, all prolific useful types. The reserve champion went to A. N. White's "Blakeney Ribbons," a sow bred at the Hawkesbury College, New South Wales, and at the time of judging under offer to a firm of New Zealand breeders.

Another Hawkesbury sow secured second award; she was the property of Gatton College. Messrs. White and Whittaker secured the balance of the awards in the younger classes, whilst Mr. Whittaker won both awards in the class for sow and litter. (Fig. 8.)

Fig. 8.

J. H. Whittaker's first prize Tamworth Sow and Litter, Brisbane Show, 1924. The sow, "Broxburn Lass" 344, is from a well known prize-winning sow, "Manning Ruby" 161, the litter being sired by "Sandy MacQueen" 97, champion Tamworth boar at same show, and an old champion at Southern Shows.

The herd-book ribbons were later presented to the winners of the championships.

Poland-Chinas.

The showing of "Polands" was unique in that they were all from New South Wales, excepting those shown by Mr. J. H. Whittaker. They were purchased in Sydney, but had the benefit of a three months' spell on his Darling Downs property, and had thus become Queenslanders. The exhibits in this section were all good-quality pigs with but one or two exceptions, though some of the younger stock might have shown better growth.

Gatton College were unfortunate in losing their entry in Poland-China boars, as he died in transit from Gatton to Brisbane, though only three months prior to his death he had travelled in crate from Sydney.

The male championship was awarded to A. N. White's "Blakeney Rebel" 146, (Fig. 9.) The reserve champion was also a very fine boar, "Boynes Wood Judge"

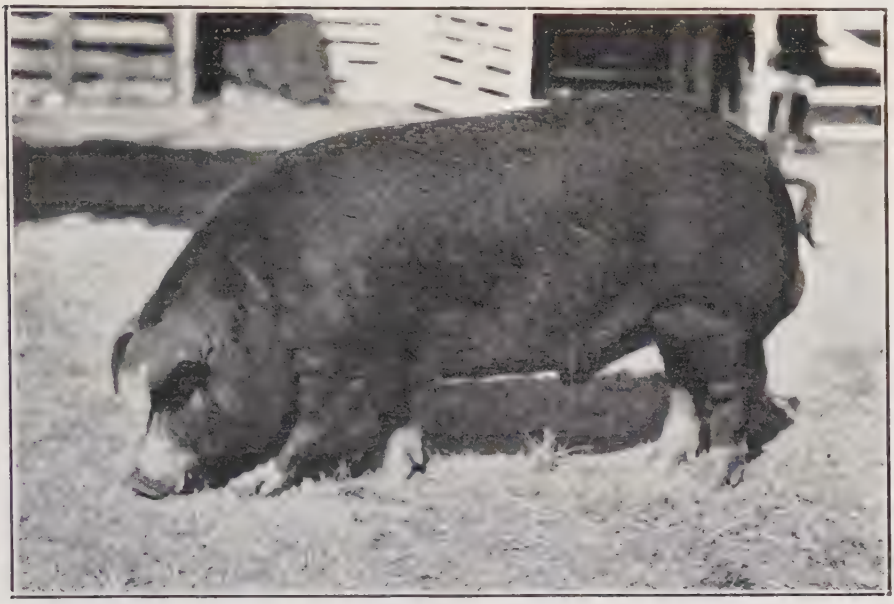


Fig. 9.

A. N. White's Champion Poland-China Boar, "Blakeney Rebel" 146, Brisbane Show, 1924. The modern Poland-China is marked in much the same way as the Berkshire, though more variation from the most desirable marking is allowed in the Poland-China. This boar is quite characteristic of the type.

Fig. 10.

Messrs. Yalden Brothers' Reserve Champion Poland-China Boar, Brisbane Show, 1924, "Boynes Wood Judge" 136. Note the fine quality skin and hair; the photograph was taken after a good deal of trouble as this boar was most active and vigorous. He has since travelled per steamer to Cairns, thence to Atherton, having been purchased for Messrs. Halliday and Townsend, of East Barron.

136 (Fig. 10), the property of Messrs. Yalden Brothers, of Cowper, New South Wales, who also owned the other boar in this class, "Boynes Wood Sydney." Both these latter boars were purchased by the writer for Atherton Tableland buyers. In the class under twelve months, Mr. White's "Blakeney Royal" won first, and J. H. Whittaker's "Broxburn Liberator" second award.

Messrs. Yalden Brothers, who also deserve special mention for coming from the Northern Rivers (with Mr. L. S. Ducat, a Berkshire breeder) to exhibit their stud pigs here, were successful in securing both awards in the class for boars under six months old. In the female classes, Gatton College again secured a championship, this time with "Danesboro Winnie" (Fig. 12), a sow the writer selected at Sydney after winning first prize with litter there last Easter.

The reserve champion sow was found in the under twelve months class, her name "Blakeney Revenue" indicating productive powers of the first order. Her class mate, "Blakeney Rapture," who secured second award, accompanies her to Atherton, being selected for Tableland farmers, who are keen on Poland-Chinas. In the under six months class, a neat little sow, "Broxburn Playmate," who also goes to Atherton, secured first award, while "Blakeney Renown," who secured second award, goes back to New South Wales for future shows there. One of the "Playmate's" sisters, "Broxburn Trixie" (both, by the way, daughters of the champion sow) goes to Messrs. Grogan Brothers, of Babinda, North Queensland, to introduce the type there. There were fewer entries in the younger classes in this than in any of the other breeds, except

Duroc-Jerseys.

in which only a very small showing was made by Messrs. Brown Brothers, of Mooroombin, Toogoolawah.

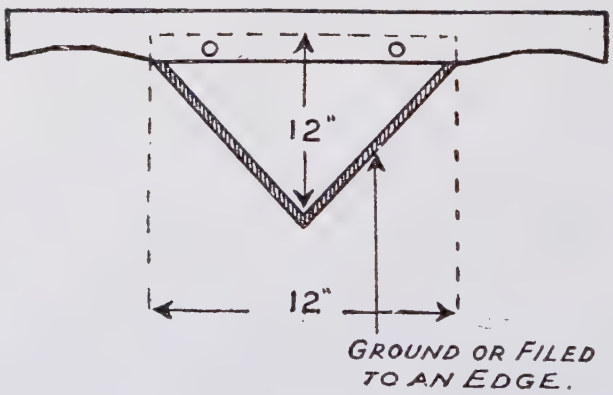
The stud pig classes were judged by Mr. A. F. Gray, Piggery Instructor of the Hawkesbury College, Richmond, New South Wales, whilst the writer judged the

Bacon Pigs

in which there was a fair entry. The awards in this section were:—First prize, H. B. Baldwin; second and third, Gatton College.

KEROSENE TIN OPENER.

The kerosene tin on the farm is a very useful thing, and the device about to be described will be found to be much more expeditious in removing the tops than laboriously cutting out with snips or ordinary tin opener.



First secure a piece of old circular saw, or failing that, have a piece of tool steel cut to dimensions as per sketch; the gauge does not want to be too heavy. Secure same to a piece of 3 x 1 by using two or three ¼-inch stove bolts. To operate, place the point as near as possible equal distance from either edge and as close to the side of the tin as possible, and force down. Repeat the operation on the other three sides, and the top will then fall in.

STUD PIGS FOR ATHERTON TABLELAND.

IMPORTANT PURCHASES AT BRISBANE SHOW.

E. J. SHELTON, H.D.A., Instructor in Pig Raising.

In order to further cater for the increasing demand for breeding stock on the Atherton Tableland a number of additional Berkshire pigs were purchased at the recent Royal National Show stud pig sales for the Kairi State Farm. These pigs have since been shipped north, and latest advices are to the effect that they arrived in excellent condition and are settling down nicely in their new home. The writer's recent visit to the Atherton district, coupled with the increasing activities of the Pig Pool Board consequent on the opening of the Bacon Factory at Floreat Siding, Mareeba, and later, special representations which were made by Messrs. C. W. Roseblade, chairman of the Pig Pool Board, and Mr. E. H. Heale, of Malanda, to the Minister for Agriculture (Hon. W. N. Gillies) have been responsible for these purchases; and, now that the Tableland pig industry is on a sound financial basis, farmers in those districts are realising the great possibilities attaching to the extensive development of pig-raising there.

Included in the purchases for Kairi State Farm were the boar "Frampton Jack" (Fig 3), bred by MacFarlane Brothers, of "Kilbirnie," Radford. This boar's

Fig. 3.

Berkshire Boar, "Frampton Jack." First prize Boar, in class under 12 months old, Brisbane Show. Purchased at 17 guineas for Kairi State Farm, North Queensland. A good, useful quality sire.

breeding traces back to the famous "Onward," a Berkshire sire many times champion in Queensland. "Frampton Jack" won first prize in his class. The sows included an excellent selection of seven head from the stud of L. S. Ducat, of Tweed Heads, N.S.W., and two selected sows from the stud of W. J. Warburton, of Northgate, Queensland.

Of Mr. Ducat's sows probably the best sow was "Waterview Jewel," sired by a well-known prize winner, "Cremorne Chief" 4346 and from "Britannia Ruby" 4176. This sow won first prize in her class in good competition, including the second-prize sow "Brentwood Lorna," a daughter of that well-known prize-winning sow "Topsy of Yarra." Another sow, same age and purchased at same price—viz., 15 guineas—was "Waterview Purity" 5219, whose dam is "Britannia Flo" 4175. "Waterview Flora" was also selected. She is also from "Britannia Flo" 4175, but is six months younger than "Waterview Purity."

Of the younger sows four were selected from the litter of "Britannia Ruby" 4176. Two of these were shown in the under six months class and one of them, "Waterview Ellie," secured second prize. These young sows should develop into very useful breeding stock. They come from a well-known, prolific, quick-growing type, and though somewhat plain are first-class breeders. Mr. Warburton's sows, "Northgate Dorothy" and "Northgate Select," are sired by the reserve champion boar "Brentwood Star" 4374 and are from one of this owner's best stud sows, "Rightaway Maid 3rd" 4198. They were six months old and were well marked and of good type.

Other Consignments for the North.

Apart altogether from the purchase for Kairi State Farm, a number of pigs were selected for and by Atherton Tableland and Cairns Hinterland buyers. These have also been shipped north, and it is hoped will be the means of assisting in improving the class of stock in those districts. The purchases included—

Poland-China boar and sow for Messrs. Halliday and Townsend, of East Barron, *viâ* Atherton. In this selection it is noteworthy that the boar selected, "Boynes Wood Judge" (Fig. 10), bred by Messrs. Yalden Brothers, of Cowper, New South Wales, won reserve champion in keen competition; the sow "Blakeney Rapture" 159 winning second prize in her class; she was in pig at time of purchase, and should prove a valuable addition to the stud of these breeders.

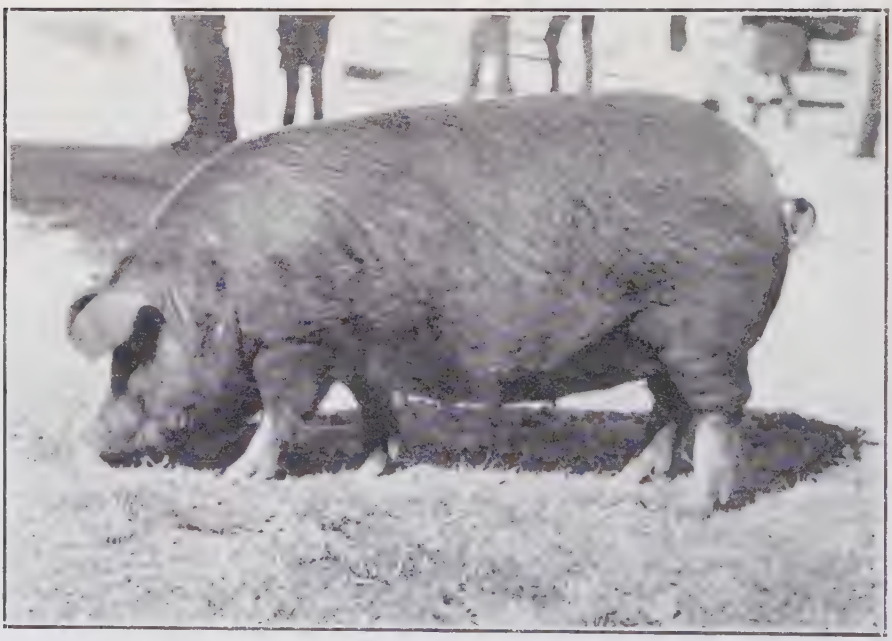


Fig. 11.

A. N. White's Reserve Champion Poland-China Sow, "Blakeney Revenue," Brisbane Show, 1924, since purchased for Mr. Jack Lawrence, Peeramon, North Queensland. She should develop into an excellent breeder. She was in the under tlweve months' class and has since farrowed.

Poland-China boar and sow for Jack Lawrence, of Mackenzie road, Peeramon, *viâ* Cairns and Kairi. In this case the sow selected, "Blakeney Revenue" 164, sold on account of A. N. White, of Penrith, New South Wales, the vendor also of "Blakeney Rapture" 159, won reserve champion in a good class. The boar was a runner-up and appeared to be of excellent type and quality, active and vigorous, extremely energetic. The pedigrees of these pigs trace back to imported blood on both sides.

Poland-China sow for Mr. Robert Gordon, of Glen Villa, Atherton. This sow, "Broxburn Playmate," sold on account of J. H. Whittaker, of Broxburn, Darling Downs (the vendor also of the sow "Broxburn Trixie," referred to below), won first prize in her class and was of very even quality, having a soft silky skin and fine glossy hair. They were both daughters of the champion sow, "Danesboro Winnie" 130 (Fig. 12), the first-prize sow with litter at Sydney Show, 1924.

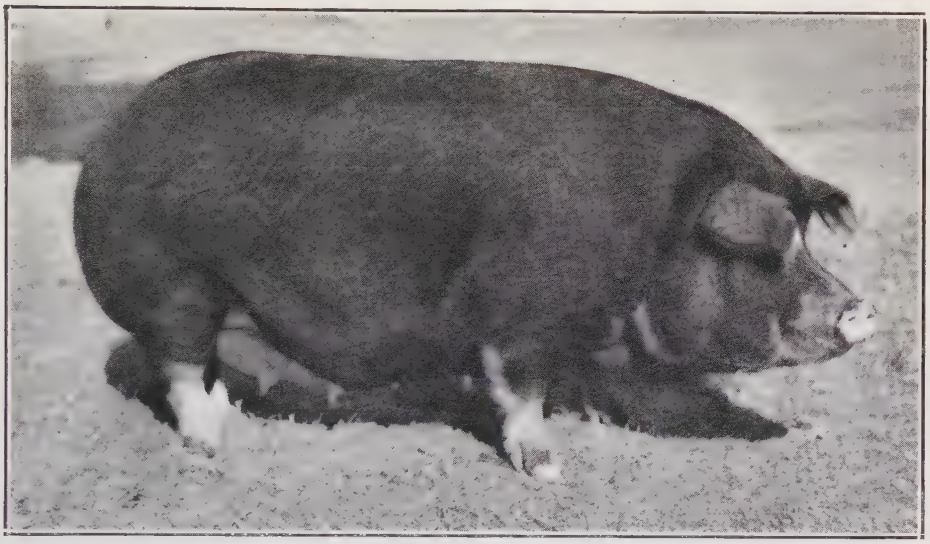


Fig. 12.

Gatton College Champion Poland-China Sow, "Danesboro Winnie" 130, bred at the Hawkesbury Agricultural College, Richmond, N.S.W. She also won first prize with litter, Sydney Show, 1924, and is a typical specimen of the most popular strains of this American breed. Note the characteristic marking and the indications of quality generally.

Berkshire boar and Poland-China sow for Messrs. Grogan Brothers, butchers, of Babinda, *via* Cairns. The boar selected for these breeders was "Waterview Don" 5430, the second-prize boar under two years old. This boar's prize record includes second at Brisbane Show, 1923 (when under six months old), first, Murwillumbah, under nine months old, and first and special at same show for best Berkshire boar in the Tweed River district. He comes of a well-recognised prize-winning strain and has sired many prize-winners. The Poland-China sow "Broxburn Trixie" is referred to above.

Tamworth boar and sow for Mr. E. H. Heale, of Kureen, near Malanda. The boar "Blakeney Riverdale," selected by Mr. Heale, who was present at the Show, is sired by the first-prize boar "Blakeney Romeo" 364 and is from a first-class sow "Blakeney Rita" 330. He was one of the first-prize pen of boars under four months old.

The Tamworth sow selected, "Blakeney Regina" 370, was sired by "Rossmore Jack" 233, a son of the champion boar "Sandy Macqueen" 97 and from a champion winner at Sydney Show.

This pair of Tamworths were of first quality and will be a welcome addition to the studs on the Tableland.

Berkshire boar for Mr. F. Grau, at Atherton. Mr. Grau was also present at the Show and selected the second-prize boar under twelve months old, "Gatton Joe," bred by the Queensland Agricultural High School and College, Gatton. He also is a useful-quality boar, coming from a tested strain.

PLATE 75.—LUCUMA AMORPHOSPERMA.

A tree in the Imbil rain forest. The tree on the extreme right of the picture is *Endiandra compressa*.

QUEENSLAND TREES.

By C. T. WHITE, F.L.S., Government Botanist, and W. D. FRANCIS, Assistant Botanist.

Lucuma amorphosperma is found in the scrubs or rain forests from Imbil to as far north as Mount Dryander, near Proserpine. Like nearly all species of the Natural Order Sapotaceæ, to which this tree belongs, the bark when cut exudes a milky juice.

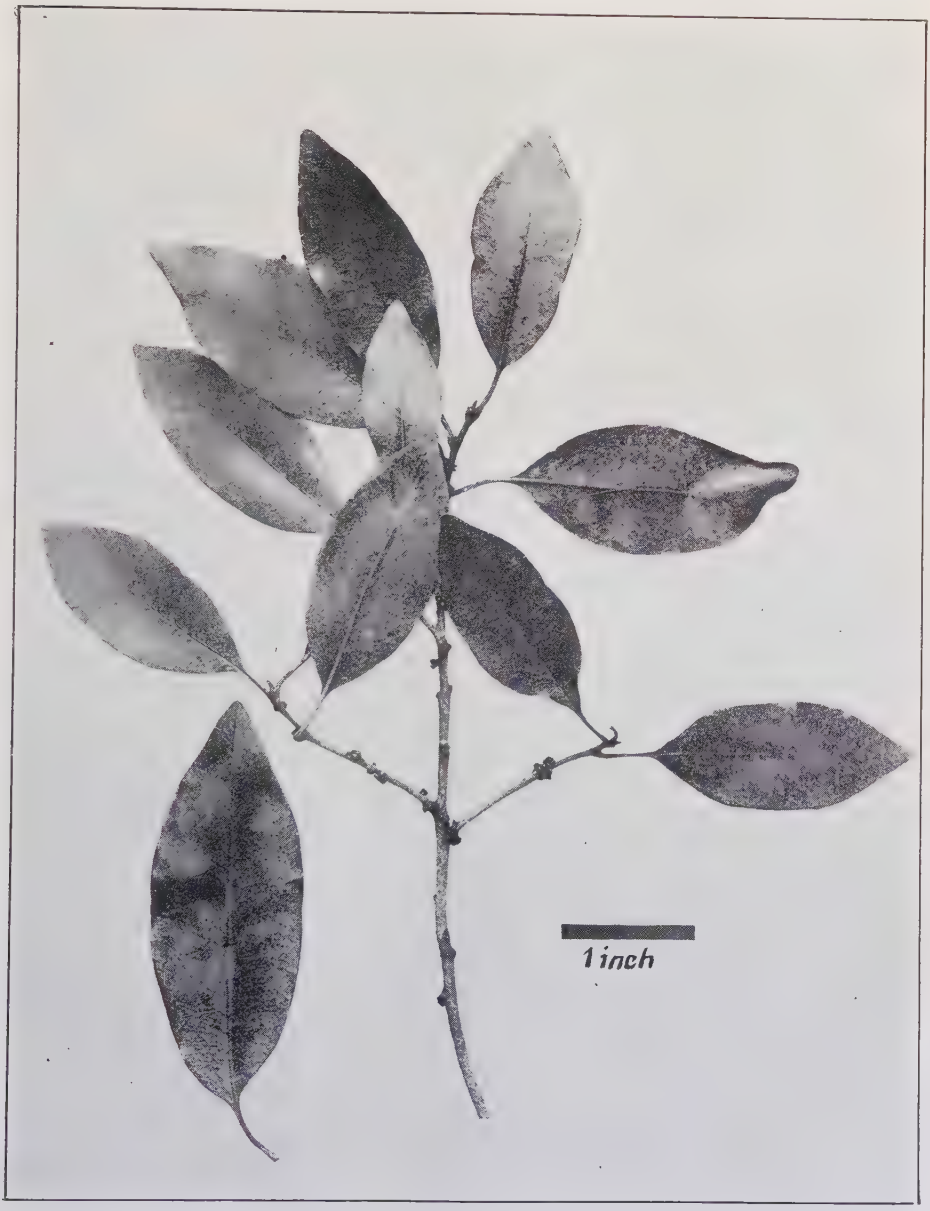


Plate 76.—Lucuma amorphosperma.

Photo. J. Henderson.]

PLATE 77.—THE SOUTHERN OLIVE (*Notelœa longifolia*, VAR. *velutina*).

THE SOUTHERN OLIVE *(Notelaea longifolia,* var. *velutina).*

A Native Plant Harbouring Fruit Fly Larvæ in the Stanthorpe District.

Another native fruit fly host has been discovered in the Stanthorpe district. The tree is known as the Southern Olive. Recently fruit fly larvæ were found in its fruit, but their exact species has not yet been determined. The following description of the tree and its fruit, courteously supplied by the Government Botanist, Mr. C. T. White, F.L.S., will enable orchardists to recognise it.

Description.—A small tree mostly growing in warm sheltered gullies, the branchlets and leaves covered with a fine close covering of short silky hairs. Leaves narrowed at both ends, 2½ to 4 in. long and ½ to 1 in. wide in the middle, the under surface closely covered with a velvety covering of short hairs, the upper surface less hairy. Flowers borne in short bunches (panicles) in the leaf-axils, fruits bluish black, the size and shape on an ordinary pea, containing one more or less rounded seed slightly under ¼ inch in diameter.

Distribution.—*Notelæa longifolia* in its normal form has a wide distribution in the coastal "brushes" or "scrubs" of New South Wales and Queensland; the variety *velutina* distinguished by being clothed with a covering of short silky hairs velvety to the touch is found in the warmer sheltered gullies of the Warwick, Stanthorpe, and Killarney districts.

Derivation of Botanical Name.—The name *Notelæa* comes from the Greek *notos* the south, and *elaia* an olive, literally meaning "Southern Olive," the plant belonging to the Olive family; *longifolia,* from the Latin *longus* long and *folium* a leaf; *velutina,* Latin meaning velvety.

Common Names.—The name "Southern Olive" is suggested. The name "Native Olive" is already commonly applied to another Australian tree of the Olive family.

Photo. J. Henderson.]

PLATE 78.—THE SOUTHERN OLIVE.

MOUNT GRAVATT EGG-LAYING COMPETITION.

REPORT FOR AUGUST, 1924.

During August a marked laying improvement was noted. The following are the individual scores, showing that a general average, per bird, of 22·5 eggs has been obtained.

SECTION 1.

LIGHT BREEDS.

Name.	Breed.	A.	B.	C.	D.	E.	F.	Month.	Total.
W. and G. W. Hindes	White Leghorns ..	104	109	99	106	102	96	151	616
Oakleigh P. F. ..	Do. ..	87	107	89	83	100	98	136	564
W. H. Flowers ..	Do. ..	63	81	105	92	114	105	145	560
J. J. McLachlan ..	Do. ..	30	103	105	75	84	63	144	559
H. T. Britten ..	Do. ..	96	105	77	88	24	82	115	550
H. Fraser	Do. ..	104	89	85	109	76	85	154	548
W. D. Melrose ..	Do. ..	60	101	109	96	83	65	120	532
Mrs. L. Anderson ..	Do. ..	94	84	90	82	88	92	142	530
S. K. Grenier ..	Do. ..	72	80	103	86	86	89	151	528
J. E. G. Purnell ..	Do. ..	89	74	83	91	92	98	130	527
A. Sterling	Anconas	84	98	103	90	65	86	126	526
Kidd Bros.	White Leghorns ..	101	105	52	98	81	83	133	520
Mrs. R. E. Hodge ..	Do. ..	100	93	66	98	86	73	127	516
L. Bird	Do. ..	98	104	86	43	93	90	141	514
T. W. Honeywill ..	Do. ..	90	103	79	79	95	65	125	511
R. C. Turner ..	Do. ..	100	96	64	88	57	103	139	508
T. H. Craig	Do. ..	84	82	79	94	60	104	153	503
G. W. Cox	Do. ..	82	63	97	59	108	88	142	497
G. Marks	Do. ..	108	75	74	68	76	79	147	480
A. Neil	Do. ..	95	90	80	92	48	74	133	479
W. Wakefield ..	Do. ..	19	94	91	76	89	103	138	472
L. J. Silman ..	Do. ..	93	89	80	67	74	64	128	467
T. W. Biddulph ..	Do. ..	104	91	43	78	63	84	126	463
Chris. A. Goos ..	Do. ..	3	102	81	101	83	82	105	452
H. P. Clarke ..	Do. ..	64	69	74	86	82	61	130	436
B. Driver	Do. ..	70	56	48	106	84	67	148	431
W. McHardie ..	Anconas	79	71	56	76	71	73	128	426
J. W. Newton ..	White Leghorns ..	81	65	65	58	81	64	129	414
Geo. Williams ..	Do. ..	79	40	70	67	73	60	119	389
Ancona Club, Pen No. 1	Anconas	51	67	70	87	58	17	96	350
Ancona Club, Pen No. 2	Do. ..	70	72	39	53	63	53	117	350

SECTION 2.

HEAVY BREEDS.

J. Hutton	Black Orpingtons ..	96	123	102	92	99	97	166	609
J. Potter	Do. ..	103	113	85	79	105	82	125	567
Carinya Poultry Farm	Do. ..	83	60	104	91	82	97	152	517
W. and G. W. Hindes	Do. ..	72	83	85	91	114	71	145	516
E. Walters	Do. ..	40	53	76	120	123	97	158	514
Kidd Bros.	Do. ..	74	55	86	78	104	71	129	468
R. Burns	Do. ..	84	73	78	77	68	78	153	458
Mrs. A. E. Gallagher	Do. ..	61	92	73	69	71	71	152	437
F. W. Lenny ..	Do. ..	91	47	96	58	55	83	132	430
H. M. Challie ..	Do. ..	66	71	85	72	101	32	99	427
H. G. Stevens ..	Do. ..	65	75	54	76	51	81	164	402
Mrs. A. Kent ..	Do. ..	79	98	44	54	48	78	116	401
J. Ferguson ..	Do. ..	36	73	88	74	59	69	149	399
E. C. Stead	Wyandottes ..	14	84	42	53	28	60	140	281

P. RUMBALL, Supervisor.

N.U.P.B.A. COMPETITION, ZILLMERE.

Following are the results of the egg-laying at the above competition for the month of August. The average per bird in the three sections was—White Leghorns 21·7, Black Orpingtons 21·6, other varieties 23·3, and for the whole competition 21·8 eggs.

The weighing of birds and eggs has been completed, and birds failing to reach the standard weight have the letter "B" marked against their score, while those laying under the 2-oz. egg are indicated with an "E."

A regrettable occurrence was the death during the month of Mr. T. Brotherton's Black Orpington No. 124, which was running second in her section, and had only a few weeks previously been awarded the President's Gold Medal for the most typical bird in the competition.

WHITE LEGHORNS.

Pen No.	Owner.	Weight Egg. Oz.	August.	Total.
104	Oakleigh P.F.	2.07	28	125
97	K. A. Sommerlad	2.16	25	110
105	Oakleigh P.F.	2.01	25	109
20	A. Hodge	2.04	23	107
21	A. Hodge	2.13	25	107
82	W. Wakefield	2.19	25	105
84	W. Wakefield	2.13	21	105
103	Oakleigh P.F.	1.98	21	105
19	A. Hodge	2.07	22	102
78	M. F. Newberry	2.01	24	102
6	H. T. Pember	2.08	24	98
76	M. F. Newberry	2.02	25	98
89	R. Duff	2.15	23	97
95	G. Williams	2.01	23	97
12	W. J. Berry	1.97	26	95
88	R. Duff	2.05	25	95
90	R. Duff	1.99	24	94
60	A. Staib	2.08	16	91
79	J. Purnell	2.10	25	91
16	J. T. Webster	2.07	23	88
48	H. C. J. Turner	2.15	23	88
64	E. Tracey	2.06	21	86
92	C. A. Hodgson	2.03	23	86
25	H. T. Britten	2.14	24	85
41	R. C. Cole	2.23	23	85
68	Kidd Bros.	2.16	23	85
93	C. A. Hodgson	2.05	20	85
46	R. C. J. Turner	2.18	22	84
73	E. C. Raymond	2.16	22	84
101	A. S. Walters	2.18	24	84
38	H. Fraser	2.25	23	82
100	A. S. Walters	1.99	22	82
11	W. J. Berry	2.24	28	80
1	F. J. Williams	2.04	22	79
39	H. Fraser	2.22	24	78
61	Carinya P. F.	2.20	24	78
174	S. L. Grenier	2.01	24	78
58	A. Staib	2.11	24	77
40	R. C. Cole	2.14	23	76
80	J. Purnell	2.11	21	76
13	G. Marks	2.25	22	75
56	J. Hutton	2.13	22	74
65	E. Tracey	2.05	15	73
74	E. C. Raymond	2.16	21	73
99	K. A. Sommerlad	2.27	23	73
15	G. Marks	2.21	27	72
51	J. Earl	2.02	24	72
106	W. L. Howard	2.14	23	72
87	Enroh Pens	2.02	19	69
45	P. F. Adams	2.45	20	67
108	W. L. Howard	2.03	24	67
86	Enroh Pens	2.29	17	66
98	K. A. Sommerlad	2.14	22	66

WHITE LEGHORNS—*continued.*

Pen No.	Owner.	Weight Egg. Oz.	August.	Total.
107	W. L. Howard	2.17	23	62
10	W. J. Berry	2.20	23	61
44	P. F. Adams	2.31	23	61
47	R. C. J. Turner	2.26	26	57
62	Carinya P.F.	2.17	22	54
26	H. T. Britten	2.02	19	53
59	A. Staib (Replace, 12-6-24)	2.07	22	53
83	W. Wakefield	2.01	16	53
69	Kidd Bros.	2.05	20	52
63	Carinya P.F.	2.37	24	49
5	H. T. Pember	2.18	24	46
34	J. L. Chapman	2.10	22	43
172	S. L. Grenier	2.05	19	43
91	C. A. Hodgson	2.12	18	42
17	J. T. Webster	2.09	—	20
94	G. Williams	—	—	4
67	Kidd Bros.	1.99	22	B100
30	M. H. Campbell	2.07	23	B98
35	J. L. Chapman	2.13	21	B93
71	J. R. Wilson	1.98	23	B93
52	G. E. Rogers	2.05	22	B90
75	E. C. Raymond	2.04	23	B90
28	M. H. Campbell	2.06	20	B88
29	M. H. Campbell	2.01	22	B87
42	R. C. Cole	2.16	22	B85
49	J. Earl	2.07	17	B85
14	G. Marks	2.13	27	B77
77	M. F. Newberry	2.16	23	B57
72	J. R. Wilson	2.00	22	B56
33	W. and G. W. Hindes	1.97	23	B54
24	A. Neil	2.06	17	B49
173	S. L. Grenier	2.02	13	B34
7	H. Sturman	2.00	17	B28
85	Enroh Pens	1.83	22	BE115
54	G. E. Rogers	1.89	22	E103
55	J. Hutton	1.86	27	BE101
70	J. R. Wilson	1.76	28	BE101
66	E. Tracey	1.93	22	BE99
81	J. Purnell	1.96	23	E95
102	A. S. Walters	1.93	12	E93
27	H. T. Britten	1.92	19	E92
31	W. and G. W. Hindes	1.87	26	BE91
32	W. and G. W. Hindes	1.96	23	BE88
18	J. T. Webster	1.94	21	BE86
36	J. L. Chapman	1.96	25	E83
53	G. E. Rogers	1.90	25	E81
57	J. Hutton	1.81	24	BE79
22	A. Neil	1.86	17	BE78
23	A. Neil	1.88	23	BE71
8	H. Sturman	1.96	20	E70
37	H. Fraser	1.89	25	BE69
9	H. Sturman	1.95	25	BE68
2	F. J. Williams	1.85	22	E67
3	F. J. Williams	1.84	20	E64
96	G. Williams	1.90	21	BE63
4	H. T. Pember	1.94	23	E55

BLACK ORPINGTONS.

126	T. Brotherton	2.02	26	130
127	E. Walters	1.98	29	124
110	T. Fanning	2.07	25	120
130	G. E. Rogers	1.97	27	120
116	G. L. Campbell	2.07	23	118
156	J. Hutton	2.14	20	118
129	E. Walters	1.97	27	114
144	F. P. Cummings	2.40	23	111
113	W. R. Wilson	2.27	24	107

BLACK ORPINGTONS—*continued.*

Pen No.	Owner.	Weight Egg. Oz.	August.	Total.
145	Everlay P.Y.	2.24	29	107
143	F. P. Cummings	2.11	19	106
155	J. Hutton	2.03	20	106
111	T. Fanning	2.26	25	105
131	G. E. Rogers	2.06	25	103
133	C. C. Dennis	2.11	22	102
139	J. Pryde	2.19	23	101
150	E. C. Raymond	2.02	24	93
120	H. M. Chaille	2.13	20	90
125	T. Brotherton	2.15	24	90
128	E. Walters	2.25	19	87
153	Enroh Pens	2.01	18	85
132	G. E. Rogers	2.01	19	80
134	C. C. Dennis	2.17	21	78
148	E. C. Raymond	2.04	19	77
149	E. C. Raymond	2.16	18	77
146	Everlay P.Y.	1.98	24	76
112	W. R. Wilson	2.01	22	74
137	W. S. Adams	2.02	28	69
152	Enroh Pens	1.99	21	62
118	H. M. Chaille	2.01	18	55
121	J. Potter	2.01	12	45
141	J. Pryde (Replace, 7-7-24)	1.98	23	33
124	T. Brotherton (Replace, 30-8-24)	—	2	2
119	H. M. Chaille	2.02	2	B81
114	W. R. Wilson	1.85	26	E126
115	G. L. Campbell	1.89	23	E118
117	G. L. Campbell	1.93	22	E114
138	W. S. Adams	1.95	27	BE112
142	T. P. Cummings	1.93	27	E112
147	Everlay P.Y.	1.83	25	E111
154	J. Hutton	1.96	17	E108
109	T. Fanning	1.94	23	E105
123	J. Potter	1.83	25	E96
136	W. S. Adams	1.70	19	E89
122	J. Potter	1.92	—	E78
140	J. Pryde	1.92	27	E78
151	Enroh Pens	1.82	23	E62
135	C. C. Dennis	1.87	16	E57

OTHER VARIETIES.

169	J. Pryde, Lang.	2.06	31	91
159	Messines P.F., R.I.R.	2.18	21	88
167	W. H. Forsyth, S.W.	2.24	22	88
158	Messines P.F., R.I.R.	2.12	26	77
160	T. C. Ollier, B.R.	2.14	26	77
168	W. H. Forsyth, S.W.	2.08	26	76
161	T. S. Ollier, B.R.	2.18	31	72
165	A. S. Walters, B.R.	2.01	23	69
180	J. Ferguson and Son, B.L.	2.06	25	69
166	W. H. Forsyth, S.W.	2.15	17	67
157	Messines P.F., R.I.R.	2.18	23	59
164	A. S. Walters, B.R.	2.16	20	59
178	J. Ferguson and Son, B.L.	1.97	21	48
176	Everlay P.Y., B.L.	2.05	20	36
163	A. S. Walters, B.R. (Replace, 3-7-24)	2.13	24	28
170	J. Pryde, Lang. (Replace, 23-6-24)	2.16	23	B48
175	Everlay P.Y., B.L.	1.86	24	E81
162	T. C. Ollier, B.R.	1.96	28	E64
171	J. Pryde, Lang. (Replace, 21-6-24)	1.86	25	E47
177	Everlay P.Y., B.L.	1.76	20	E41
179	J. Ferguson and Son, B.L.	1.72	13	E30

C. KIDD, Hon. Secretary.

N.U.P.B.A., TOOWOOMBA SUB-BRANCH.

Single Test Egg-laying Competition—Scores to 31st July, 1924.

BLACK ORPINGTONS.

Pen No.	Owner.	July.	Total.	Pen No.	Owner.	July.	Total.
2	Hutton, Jas.	24	100	10	Everlay Poultry Farm	23	69
29	Adams, W. S. ..	27	98	21	Walsh, H.	21	67
52	Holmes, R.	25	96	19	Maund, Mrs. L. ..	21	65
11	Webb, A. W. ..	27	91	50	Ollier, T. C.	26	64
9	Everlay Poultry Farm	23	90	6	Walters, E.	22	62
28	Williams, W. D. ..	21	90	13	Burns, R.	20	62
51	Holmes, R.	24	89	27	Williams, W. D. ..	19	62
24	Carr, T. J.	22	86	25	Stephens, Moss ..	14	60
33	Potter, Jas.	21	85	44	Smith, E. R.	8	59
42	Wilson, W. R. ..	17	85	36	Rivett, R. R. ..	18	59
22	Walsh, H.	25	84	37	Short, J. W.	22	59
45	Stephens, H. B. ..	27	83	30	Adams, W. S. ..	22	54
20	Maund, Mrs. L. ..	22	82	48	Head, J.	21	46
23	Carr, T. J.	21	81	16	Macfarlane, K. ..	17	43
49	Ollier, T. C.	23	79	14	Burns, R.	19	41
40	Rogers, G. E. ..	22	78	46	Stephens, H. B. ..	7	41
41	Wilson, W. R. ..	22	78	35	Rivett, R. R. ..	6	39
5	Walters, E.	22	77	34	Potter, Jas.	15	37
7	Adams, P. F. ..	29	77	47	Head, J.	3	37
31	Radford, G.	22	75	4	McLay, J. A. ..	7	35
32	Radford, G.	25	74	17	Champion, S. H. K...	3	33
15	Macfarlane, K. ..	23	74	26	Stephens, Moss ..	21	26
43	Smith, E. R.	24	73	8	Adams, P. F. ..	4	24
3	McLay, J. A. ..	21	72	38	Short, J. W.	21	21
1	Hutton, Jas. ..	23	71	18	Champion, S. H. K...	16	17
39	Rogers, G. E. ..	18	70	12	Webb, A. W. ..	0	16

OTHER VARIETIES.

Pen No.	Owner.	July.	Total.	Pen No.	Owner.	July.	Total.
60	Le Pla, A. W. (R.I.R.)	23	92	71	Brand, V. (R.I.R.) ..	5	56
59	Le Pla, A. W. (R.I.R.)	22	90	64	Rafter, J. J. (B.L.)..	7	53
70	Dibbs, H. (Lang.) ..	24	88	54	Warrian, C. G. (Rks.)	25	45
53	Warrian, C. G. (Rks.)	25	83	58	Maund, Mrs. L. (Col. W'dottes)	17	30
66	Becker, W. (Lang.)..	18	80	62	Harrington, J. (B.L.)	14	29
57	Maund, Mrs. L. (Col. W'dottes) ..	26	72	63	Rafter, J. J. (B.L.)..	12	26
61	Harrington, J. (B.L.)	20	71	72	Brand, V. (R.I.R.) ..	12	21
56	Carr, T. J. (S.W.)..	22	65	55	Carr, T. J. (S.W.) ..	19	19
65	Becker, W. (Lang.)..	23	65	67	Everlay Poultry Farm (B.L.)	5	7
69	Dibbs, H. (Lang.) ..	22	63				
68	Everlay Poultry Farm (B.L.)	24	57				

WHITE LEGHORNS.

Pen. No.	Owner.	July.	Total.	Pen. No.	Owner.	July.	Total.
132	Short, J. W.	25	103	106	Hutton, J.	24	78
112	Chapman, S. ..	23	95	129	Manning, H. G. ..	20	78
105	Hutton, J.	21	94	101	Turner, R. C. J. ..	22	77
131	Short, J. W.	21	91	122	Grant, W.	23	77
114	Cole, R. C.	23	89	93	Williams, D. W. ..	22	75
74	Dippel, D. H. ..	22	87	123	King, J. E.	20	73
78	Howard, R. B. ..	23	86	100	Newton, J. W. ..	21	71
124	King, J. E.	23	85	116	Taylor, J.	24	71
110	Emoh Pens	23	84	103	Fallon, P. J.	23	70
111	Chapman, S. ..	20	83	113	Cole, R. C.	16	69
73	Dippel, D. H. ..	23	82	75	Wilson, W. ..	20	68
115	Taylor, J.	21	81	102	Turner, R. C. J. ..	20	68
121	Grant, W.	21	81	108	Adams, P. F. ..	20	67
91	Stilton, G.	22	80	118	Goggins, J. ..	27	67

WHITE LEGHORNS—*continued.*

Pen No.	Owner.	July.	Total.
77	Howard, R. B.	21	66
104	Fallon, P. J.	21	65
109	Emoh Pens	19	65
99	Newton, J. W.	19	63
88	Warrian, C. G.	24	62
125	Maurer, G.	24	62
95	Adams, W. S.	21	61
87	Warrian, C. G.	24	60
97	Hunt, G.	22	60
117	Goggins, J.	25	60
128	Stilton, E. J.	23	60
86	Rivett, R. R.	22	58
96	Adams, W. S.	22	57
76	Wilson, W.	21	56
85	Rivett, R. R.	22	55
127	Stilton, E. J.	17	54
80	McBean, S.	17	50
92	Stilton, G.	20	50
107	Adams, P. F.	16	49
81	Smith, E. R.	14	48
90	Ellis, L. E.	19	48
83	Carinya Poultry Farm	11	46
120	Rogers, G. E.	25	45
126	Maurer, G.	23	44
130	Manning, H. G.	24	43
84	Carinya Poultry Farm	20	41
79	McBean, S.	23	40
119	Rogers, G. E.	8	40
94	Williams, D. W.	15	38
89	Ellis, L. E.	15	37
98	Hunt, G.	18	29
82	Smith, E. R.	3	15

J. GARNER, Government Supervisor.

RAINFALL IN THE AGRICULTURAL DISTRICTS.

TABLE SHOWING THE AVERAGE RAINFALL FOR THE MONTH OF JULY, IN THE AGRICULTURAL DISTRICTS, TOGETHER WITH TOTAL RAINFALLS DURING JULY, 1924 AND 1923, FOR COMPARISON.

Divisions and Stations.	Average Rainfall. July.	Average Rainfall. No. of Years' Records.	Total Rainfall. July, 1924.	Total Rainfall. July, 1923.
North Coast.	In.		In.	In.
Atherton	0·94	23	1·62	0·52
Cairns	1·60	42	2·75	0 39
Cardwell	1·45	52	0·20	0·57
Cooktown	0 98	48	3·37	0·16
Herberton	0·73	37	1·19	1·01
Ingham	1·62	32	0 50	0·54
Innisfail	4·70	43	8·89	2 95
Mossman	1·61	15	1·98	0 05
Townsville	0 59	53	...	0·09
Central Coast.				
Ayr	0·70	37	0·01	0·06
Bowen	0·97	53	0·14	0·47
Charters Towers	0 66	42	..	0 16
Mackay	1·75	53	0·47	1·19
Proserpine	1·43	21	0·72	0·04
St. Lawrence	1·32	53	2 08	1·45
South Coast.				
Biggenden	1·35	25	4·58	0·79
Bundaberg	1·93	41	3 63	0·90
Brisbane	2 35	73	5·33	2·05
Childers	1·68	29	6 64	1·00
Crohamhurst	2·91	30	9·17	4·57
Esk	2·00	37	4·96	1·14
Gayndah	1·52	53	2·42	1·29
Gympie	2 19	54	5 64	2·81
Glasshouse Mts.	2·61	16	...	3·54
Kilkivan	1·71	45	2·63	1·50
Maryborough	1·98	53	4·69	2·87
South Coast—continued:				
Nambour	2 82	28	9·97	4·71
Nanango	1·77	42	2 87	1·29
Rockhampton	1·51	37	2 02	0·35
Woodford	2 53	37	4·89	2 82
Darling Downs.				
Dalby	1 80	54	1·65	0·62
Emu Vale	1·61	28	2·13	0 96
Jimbour	1 67	36	1·34	0·41
Miles	1·75	39	2·06	0·49
Stanthorpe	2·07	51	2·75	1·57
Toowoomba	2·07	52	4·83	0·99
Warwick	1·84	59	3·45	0·97
Maranoa.				
Roma	1·50	50	2·92	1·08
State Farms, &c.				
Bungeworgorai	1·67	10	3·44	1·13
Gatton College	1·43	25	2·62	0·61
Gindie	1·09	25	0·33	0·42
Hermitage	1·81	18	2·85	0·74
Kairi	1·27	10	1·80	0·51
Sugar Experiment Station, Mackay	1·59	27	1·55	0·74
Warren	1·34	10	1·59	0·75

NOTE.—The averages have been compiled from official data during the periods indicated; but the totals for July, 1924, and for the same period of 1923, having been compiled from telegraphic reports, are subject to revision.

GEORGE G. BOND, State Meteorologist.

STUDIES ON FERTILITY OF SUGAR-CANE FLOWERS.

SOUTH JOHNSTONE SUGAR EXPERIMENT STATION, 1924.

Mr. W. Cottrell-Dormer, entomologist, reports to the Director of the Bureau of Sugar Experiment Stations (Mr. H. T. Easterby) as follows:—

The following observations were made by Mr. McWalters and myself during the first half of July, 1924:—

As we were almost entirely lacking in literature dealing with the processes of pollination and fertilisation of the cane flower, we deemed it necessary to start at bedrock that we might obtain a thorough grasp of our subject. Thus flowers were taken at different stages, and with the aid of a good microscope observations were made.

When the lodicules at the base of the ovary commence to swell and the glumes and palets open up, the two purplish feathery stigmas droop out and ripen. Shortly afterwards the three unripe authers are loosened and hang about the stigmas. On first emerging these are of a light yellow colour. Under the influence of light and warmth the anthers gradually assume a purple tinge, similar to that of the stigmas. In normal circumstances a healthy anther will, at this stage, burst open. These two stages are depicted in Figs. (*a*) and (*b*). As the slightest breeze is sufficient to cause the anthers to swing about, the pollen contained within is loosened and dusted on the stigmas. The stigmas are covered with a sticky, syrupy secretion, which serves to hold whatever pollen may chance to fall upon them. This fluid or secretion also has high nutritive properties. On coming into contact with the fluid the pollen grain, if ripe, shows a chemotaxical reaction. It is influenced by the fluid and germinates. The pollen grain has two walls—the intine and the extine—the extine is thicker and is pierced by a small pore or micropyle (Fig. (*a*)). A filament of protoplasm is protruded through the intine and through the micropyle of the extine. This filament, known as the pollen tube, acted upon by chemical stimuli, slowly increases in length (Fig. (*d*)), and finds its way to the stigma. It then enters the latter, and still increasing in length, eventually reaches the ovary, passing through the style of the stigma. Union then takes place with the female cell of the ovary, and the latter is fertilised.

Field Observations.

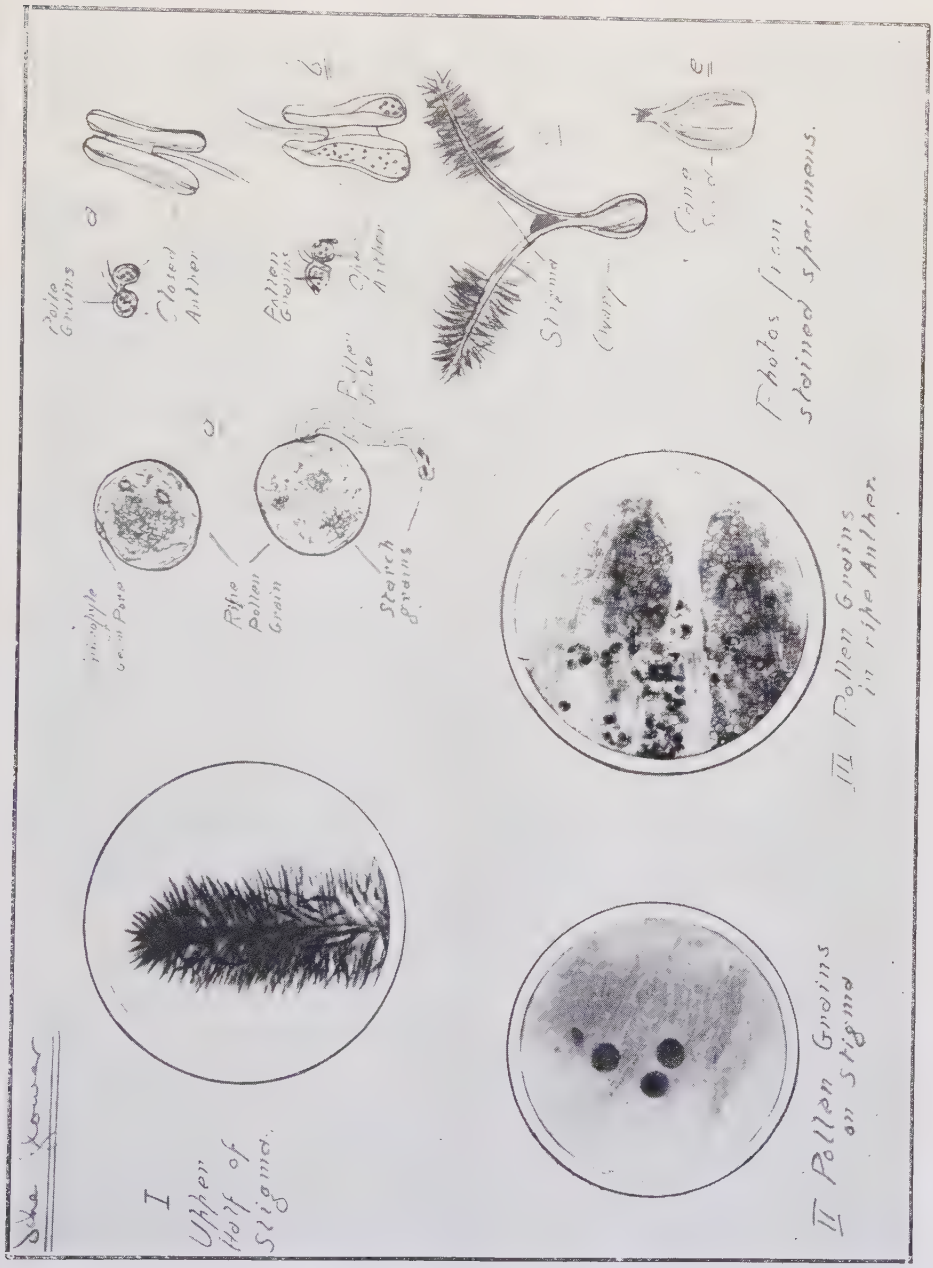
Having obtained this information we made a thorough examination, with pocket lenses, of arrows of various cane varieties. We found that in most of the varieties the anthers, though well excerted, were dying off without ripening and opening. Under these circumstances the flowers would be almost entirely dependent on wind-pollination for fertilisation. If the big majority of surrounding arrows were similarly immature, which was the case, the chances of pollination for each individual flower would be very small. This would account for the very poor percentage of germinations which were being obtained. The weather at the time was constantly showery and the sky overcast. Two varieties out of those examined, D.109 and Q.1092, were the only ones found with any appreciable percentage of open anthers. Badila had exceedingly few, and Goru (24 and 24A) had none at all. During the next couple of days the weather fined up, and we had fairly strong sunshine. Observations were continued, and we found that most of the varieties were favourably influenced by this change. The younger Badila arrows bore mature flowers, though the older ones remained obdurate. Goru showed but very slight improvement, and several arrows might be examined without finding mature anthers.

Cross Pollination.

This observation suggested that cross pollination might be a fairly simple matter if arrows with open anthers were used as males and those with closed anthers as females.

Experiment 1.—We decided to attain this object by occasionally shaking mature male arrows over and to windward of a selected female arrow. As an experiment we decided to use (1) D.109 male x N.G.15 female; (2) Q.1092 male x N.G.15 female; (3) N.G.15 male x N.G.24A female. We selected male arrows with numbers of open anthers and took samples thereof. Female arrows with immature anthers were picked out and conspicuously marked. Samples of the flowers of these were also taken. All these samples were kept well separated in different tubes. Now it was necessary to determine whether the pollen was viable and whether the stigmas were receptive. One method is to dust the pollen on to the stigmas of a Datura or of a Hibiscus. We tried the latter, but found it very awkward to handle under the microscope. The method we found most practical was to dissect a number of flowers and place the ovaries with stigmas in small damp filter paper cells on glass slides. For single ovaries the usual 3-inch by 1-inch slide was used. A piece of

filter paper cut about the size of the rectangular cover glasses we were using was punched with a small hole in the centre. The paper was placed on the slide and damped. An ovary with stigmas was placed in this and carefully examined with a 2-3-inch objective to see that no wind-borne pollen had yet found its way to the stigmas. Pollen of the desired male was then dusted on by holding an open anther



with forceps and teasing with a needle. Another examination was made with the microscope to see that pollination had been effected. The cover glass was then dropped over the whole and the slide set aside for two hours. When this time had elapsed a further examination was made. If ripe pollen had been used and the stigmas were receptive the pollen grains could be seen to have sent out pollen

tubes. Tests were made in this way with the varieties mentioned above by using several ovaries from different parts of the arrow and anthers in various stages of maturity, but all open. In this class long strips of filter paper were used with several holes, and cover glasses placed on 6-inch by 2-inch slides. The strips were kept moist by a thread of cotton leading to a small dish of water. The anthers used were also subjected to the iodine test for starch which, when present, is a sign of ripeness though not always of viability. Photo. I. shows the upper portion of a mature stigma. Photo. II. and Fig. (*d*) show mature pollen grains sending out pollen tubes. Figs. (*a*) and (*b*) show closed and open anthers with cross sections, all diagramatic. Photo. III. shows portion of a mature, slightly opened anther, stained and slightly compressed to show contained pollen grains. These are seen to vary in colour from perfectly hyaline to almost entirely black. Iodine has been used in the stain, and this black colour is due to the contained starch, which stains deep blue. The hyaline grains are immature.

PLATE 79.

SECOND STAGE SEEDLINGS, FIFTEEN MONTHS' OLD. NO IRRIGATION. JULY, 1924.

Thus it was decided that the selected parents should hybridise without great difficulty and that the shaking method was quite practicable. Male arrows were therefore shaken against female ones in the order mentioned above for three days, once to twice a day, fresh arrows being used each time. In the case of Goru and Badila, the weather interfered with operations after three dustings. Flowers were examined after dusting, and a few pollen grains could readily be detected.

Development of Seed.

With a view to ascertaining the correctness of our supposition that open anthers meant fertile ovaries, we cut off a fairly young arrow of D.109 which had many open anthers, and stood it in water in the laboratory. Most of the stigmas were found to have been pollinated. Stigmas were taken from time to time, treated, and examined with a 1/6-inch semi-holoscopic objective. At first the pollen tubes were found to be quite short. As fresh stigmas were examined at intervals of two or three hours, longer pollen tubes could be seen, and they were found to have entered the stigmatic hairs. After forty-eight hours most of the tubes had descended the whole length of the hairs and were lost to view. Thus it was seen that fertilisation and development of the ovary must be rather a lengthy process.

Arrows of Goru, whose anthers were dying off without opening, were compared with those of D.109, which had open anthers. On dissecting the flowers it was found that the ovaries of old and young flowers of Goru were small and often shrivelled, whereas in the case of D.109 the ovaries varied greatly in size from small infertile ones to some twice their size, which were evidently fertile and developing into healthy seed. Older arrows of both varieties were examined. Whereas the Goru flowers contained but the very small green immature ovaries, even when both anthers and stigmas were long dead, those of D.109 in many cases contained plump, healthy-looking, light-brown seed. This applied also to other varieties whose anthers had died unopened, only occasionally could a seed be found, which was probably due to wind-pollination. It has been stated that three weeks usually elapses between the first opening of the arrow and the ripening of the seed.

Plate 80.

Second Stage Seedlings, Fifteen Months' Old. No Irrigation. July, 1924.

Ripening of Fertile Husks in Arrows.

As there are many thousand husks in each single arrow it would be a matter of great difficulty to make an accurate estimate of this figure. However, we carried out several experiments aiming at obtaining a reliable method of testing suitability for planting of selected arrows. An old husk containing a fully developed seed weighs considerably more, proportionately speaking, than an old non-fertile husk. If small bunches of husks be pulled of a mature arrow and rubbed into a ball between the hands, many of the dry husks fall out. It was found on examination that these contained most of the seed—*i.e.*, that those husks which remained between the hands were mostly non-fertile. The husks which fall are for the

greater part freed from hairs and bristles in the rubbing. By simply feeling these fallen husks individually one could distinguish those which contained seed, or by noting the sound when dropped on to a sheet of paper. Buoyancy tests were made in water, alcohol, and ether. All husks floated in water, but in alcohol and in ether a certain percentage invariably sank. With alcohol many of these heavy husks contained seed. In the case of ether most of them proved to be fertile. Thus ether proved to be the best test for fertility of husks on ripe arrows. When seeds are taken out from the palets and glumes of the old flowers they are found almost invariably heavier than water. Blowing was also tried, both by breath and mechanically (with a Buffalo forge), but results were not certain, as often the stem of the flower remains attached after rubbing and offers increased surface, which, in the case of fertile husks, counterbalances the greater momentum.

Thus an indication of the percentage of fertile husks in an arrow and of the possible percentage of germination may be arrived at by rubbing up different parts of the arrow, mixing the husks which fall and testing them in ether.

Germination of Cane Seeds.

In order to check our conclusions the following experiment was initiated:—

Experiment 2.—A seed flat was prepared with good soil and divided with string into six squares, numbered 1 to 6, and planted as follows:—

1. 10 seeds used in water buoyancy test from upper portion of arrow.
2. 7 seeds used in ether buoyancy test from upper portion of arrow.
3. 100 husks rubbed out from spikelets at random from upper portion of arrow.
4. 100 husks plucked out from arrow at random from upper portion of arrow.
5. 100 husks rubbed out from spikelets at random from lower portion of arrow.
6. 100 husks plucked out from arrow at random from lower portion of arrow.

Husks from the arrow had previously been tested in ether which showed a possible germination of 33 per cent. Actually 25 per cent. contained seed. Results of experiment will be given at end of report. Another experiment relative to germination, but irrespective of ether or other tests, will be detailed at end of report. In these and other experiments it was found that germination was strongly influenced by warmth, and that by keeping flats fairly warm—say, 27 deg. C. or 30 deg. C. on the second and third nights—early sprouting was greatly enhanced.

Conclusion.

Results of the above observations may be briefly summarised thus:—

(1) At the commencement of the arrowing season the operator should go into the field and make examinations of a number of arrows. With a little practice it can readily be determined whether anthers are bursting with the naked eye. Those arrows with bursting anthers should be marked conspicuously with a dated label. When ripe they are to be brought in, and 300 or 400 husks rubbed out from representative parts of each arrow. These husks may then be tested for fertility with ether, and the best arrows selected for planting.

(2) Suitable young female arrows should also be marked and pollen dusting carried on from day to day, after making viability tests, with a view to obtaining hybrids with selected male parents. This method of dusting is, of course, somewhat inaccurate and untrustworthy as no emasculation is practised. However, if time were available it would be a simple matter to emasculate and pollinate individual flowers.

The very small percentage of germinations recently obtained was apparently due to the fact that in most of the varieties under cultivation the anthers were dying without maturing. This state was probably brought about by climatic factors, since when the wet cloudy weather changed to sunshine for a couple of days, open anthers were found to a greater or lesser extent on all these varieties.

Insects Attacking Arrows.

A large green Aphis was found to be fairly plentiful on many arrows. It was invariably solitary and unattended by ants or other insects. On one arrow a larva of a Syrphis fly was observed; it was not in the act of devouring an Aphis but it is probably an enemy of the latter. The Aphis usually rests on the stem of a flower or panicle where it inserts its proboscis. Two species of small Fulgorid Leaf Hoppers were frequently met with sucking the sap of the short flower stems. It was often noticed that odd flowers in a panicle were dead and dried up while the remainder still remained vigorous. This may have been due to these sap-sucking insects.

Fungi on Flowers.

Two widely different genera of Fungi were found represented on old flowers, or husks. One of these, the more common, was a Mucor, and in warm weather would probably spread rather rapidly in germination flats.

Methods of Procedure in Investigations.

For examination of pollen grains, pollen tubes, stigmas, anthers, &c., the following method was used:—A mixture composed of 50 per cent. lactic acid 200 parts, water 40 parts, potassium iodide 1 part; the two last components were first mixed and saturated with pure iodine, and poured into the lactic acid and well stirred. The

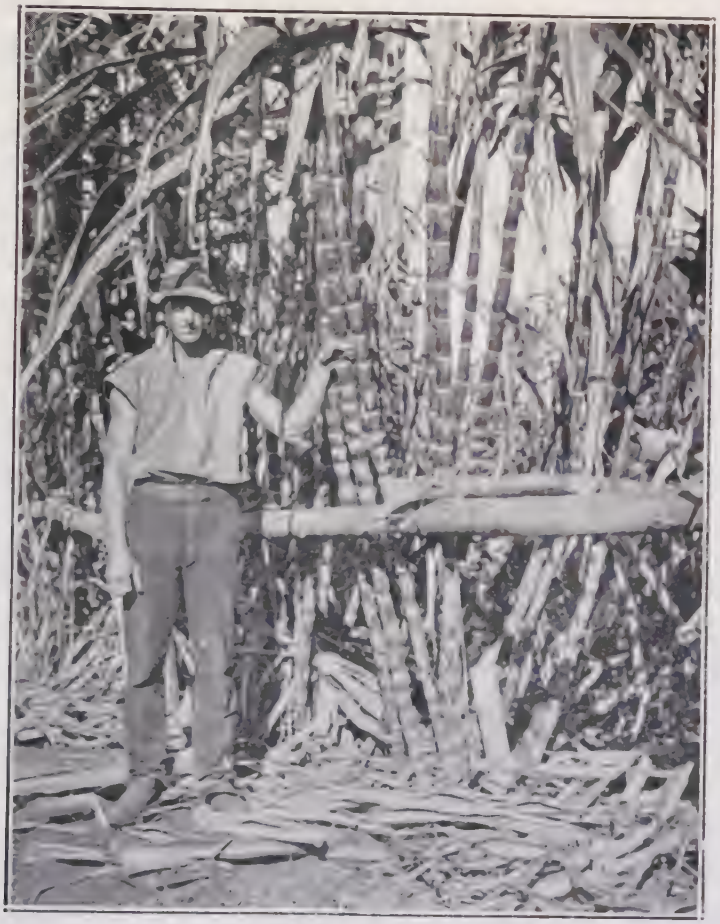


Plate 81.
Second Stage Seedlings, Fifteen Months' Old. No Irrigation.
July, 1924.

organ, or organs, to be examined was dropped into a little of this mixture and the whole brought to the boil and allowed to cool. The lactic acid bleaches the organ and clears it, and acts as a good mounting medium for temporary work, while the iodine stains the extine of the pollen grains yellow and the starch grains blue. This enables one to follow the pollen tubes (whose protoplasm stains yellow), which contain a few starch grains at their extremity into, or about, the transparent stigma. One is also able to determine whether the pollen grain is ripe or otherwise, as it remains perfectly hyaline if unripe. (See Photo. III.) The whole operation may be performed on a slide or cover glass, but it is preferable to use a watch glass, as

otherwise the small amount of fluid used would take on a red tinge from the natural colour of the stigmas and anthers. Whole flowers may be treated in this manner and examined in ground cells. To obtain a good view of the pollen-tube a $\frac{1}{6}$ in. or $\frac{1}{12}$ in. immersion objective is necessary, though they are readily detected with a $\frac{2}{3}$ in.

For photographic work carbol-fuchsin was added to the reagent and filtered. By moderating the heating of the stain and length of immersion very different effects may be obtained. When stained the organ may be washed in dilute alcohol or placed directly in 50 per cent. lactic acid, washed in this, and mounted in it. The stain is best used fresh, and the results are at their best a few hours after staining. Very beautiful and clear effects are obtained, as may be judged by Photo. III.; pollen grains stain a light-blue with deep-blue starch grains, cuticle light-yellow, stigmas deep reddish-brown to violet-red according to length of immersion, nuclei deep violet.

PLATE 82.

THIRD STAGE SEEDLINGS SELECTED FROM PRIMARY SECOND STAGE CANES, PLANTED FOURTEEN WEEKS, JULY, 1924.

A simple method of separating seeds from husks:—The husk is pressed with the finger nail at its base against the table or other support, and the point of a fine pair of forceps or other instrument pressed on the side and run up to the extremity. If a seed is lodged within the husk it will be thrown out by this procedure. The seed is a small light-brown bulb-shaped object 1·25 mm. to 1·5 mm. in length.

Results of Experiments.

Experiment (2).—Total germinations:—

(1)—2; (2)—0; (3)—18; (4)—11; (5)—1; (6)—0.

These germinations took place over a period of ten days, and do not include some which were probably eaten by insects—Nitidulid beetles, &c.—unknown to us. It is interesting to note that none of the seeds treated with ether germinated, although ether is said to stimulate germination (perhaps not when used in this manner).

Experiment (3).—Filter paper tests:—

Strips of filter paper (sterilised) were good. Arrows were somewhat on the unripe side, so that germinations were not the best.

Strip.	Variety.	Portion of Arrow.	Number of Husks.	Germinations.
1	Q. 903	Top	100	..
2	Q. 903	Bottom	100	..
3	N.G. 16 (young arrow)	Top	100	3
4	N.G. 16 (young arrow)	Bottom	100	..
5	N.G. 16 (older arrow)	Top	100	1
6	N.G. 16 (older arrow)	Bottom	100	1
7	Q. 1092	Top	100	..
8	Q. 1092	Bottom	100	..
9	E.K. 28	Top	300	..
10	E.K. 28	Bottom	100	..
11	D. 109	Top	300	1
12	D. 109	Bottom	300	1

These poor results may also have been due to the very cold nights which have prevailed of late.

A flat planted by Mr. McWalters six days ago now shows over 400 germinations —variety D.109. Another shows upwards of 100—variety Q.903. The arrows used were first tested with ether, and the above results approximate very closely our estimate. These results also bear out our finding with regard to pollination, fertility, &c. They also explain why it is that some workers in other countries obtain such enormous numbers of germinations. They stick to good pollinating varieties and plant great quantities of their husks.

CAUSES OF LOW TESTS OF CREAM.

F. J. WATSON, Instructor in Dairying.

Variations in cream tests are commonly a source of annoyance to dairymen and to butter factory managers, and frequently complaints are made to factory managers of which the following letter is typical:—

"I cannot understand test dropping like it does. Only last week I got a notice from you that the test was down to 30 per cent., and, without any alteration of the cream screw, the following can was 37 per cent. Since then I have tightened cream screw, with the result that the test is lower than ever. Our herd is composed chiefly of registered Jerseys, which are fed on the same feed every day. Also, they are milked by the same person; and the separator is always turned by the same person. For feed they get one kerosene tin of chaffed cow-cane, or barley with pulped pumpkin, sweet potatoes, and turnips; also cornmeal. If cows will not cream on that—well, I give up. While running on grass our cows averaged 4.87 per cent. by Government test; one went as high as 6.6 per cent. By that you can see they are cream producers."

The writer of this letter, in common with many dairymen, was obviously ignorant of the fact that the percentage of butter-fat in milk has no relation to the percentage of butter-fat in the cream produced from the milk.

Provided that the mechanism of a separator is in good order, the percentage of fat in cream is entirely dependent on the proper adjustment of the devices which regulate the flow of milk into the separator bowl and the outflow of milk and cream therefrom, and the speed at which the separator bowl is driven; which should be as set out by the manufacturer of the separator.

Any of the modern makes of separator may be adjusted so that cream of any percentage up to 45 per cent. can be obtained, whether the milk contains 3.5 per cent. or 5.3 per cent. of butter-fat.

In the case of the letter quoted, the writer investigated the matter. He found the separated milk outlets of the bowl (a Sharples' Tubular) to be partially choked, with the result that cream could not be obtained with more than 30 per cent. of fat; but after a thorough cleansing of the tubes, cream of as high as 50 per cent. fat could be obtained, with only 0.05 per cent. of fat in the separated milk.

Causes of Low Tests.

The causes of low tests are many and the following are some of the most common:—

(1) The separator may be so worn as to allow the bowl to vibrate.

(2) The separator may be worked at too low a speed or too irregular a speed causing a loss of fat in the separated milk, and a decrease of fat in the cream. Very few persons can turn the handle of a separator at an even speed for any length of time, and it is advisable to check the speed by means of a clock or watch with a second hand.

(3) The milk may be separated at too low a temperature. Contrary to general opinion, which is influenced by the appearance of the cream as it leaves the separator, cream separated from cold milk contains less fat than that which is separated from warm milk. Milk should be separated as soon after milking as possible, before it has time to cool or the cream to rise.

(4) The separated milk or water used for flushing the bowl, if allowed to flow into the cream, will lower the butter-fat content. This frequently happens during winter, when the number of "separatings" required to fill a cream can may be four times as many as in the summer time.

(5) Neglect of proper cleansing of the separator bowl parts is sometimes a cause of low tests, for if the separated milk outlet is clogged in the smallest degree (as it was in the instance mentioned) the milk and cream cannot be delivered from the bowl in their proper proportions.

(6) In wet weather, especially when succeeding a drought, and with a plentitude of young succulent fodder, there is liable to be a fall in the fat content of cream, owing to an alteration in the specific gravity of the milk. This can easily be remedied by readjustment of the cream screw.

(7) A frequent cause is due to the device for regulating the flow of milk into the bowl, which is usually a float, being damaged, and so allowing too great a flow of milk. Some people remove the float entirely and regulate the inflow by hand, a practice by which it is impossible to obtain an even percentage of fat in the cream.

(8) Another cause of variation is due to cream arriving at the butter factory in a condition which makes it impossible, under factory conditions, for the cream tester to obtain a sample which is representative of the whole canful. This happens in winter when the cream is aged and the butter-fat content too high, and in summer when the cream is affected with a gaseous fermentation, or is partially churned.

By imperfect separation there is a much greater loss to the dairymen, and to the dairy industry generally, than is generally imagined; and dairymen should, from time to time, have their separated milk tested, and if the result is found to be abnormally high, say, over 0.01 per cent. fat, the separator should be put into expert hands for repair or readjustment.

A better knowledge of the principles of mechanical separation of cream, and of the mechanism of the separator, would save many a dairyman from being embittered against the factory manager. It would save many a really serviceable separator from being discarded, and save the dairyman from a great deal of annoyance and expense to himself.

CONVENIENT "S" HOOK.

One of the first jobs the amateur blacksmith undertakes is the making of "S" hooks, for which there is a great demand on farms. A very convenient hook is

illustrated, in which a quarter turn is given to one end, so that while one hook lies flat on a level surface the other hook stands up at right angles to the surface. This arrangement prevents the hook from catching in objects on the ground.

PLATE 83.

One of the "Jarvis Injectors" for applying Para-dichlor, in dry form for fumigating Cane Grubs in a canefield at Meringa, near Cairns.

General Notes.

A Northern Animal and Bird Sanctuary.

"Mungalla," the property of Mr. F. A. Cassady, of Mungalla, Ingham, has been declared to be a Sanctuary in which it shall be unlawful for any person to take or kill any animal or bird.

Cotton Harvesting.

To meet the wishes of a large number of growers and in view of the late planting due to the dry spring, the Minister for Agriculture has decided to permit harvesting of cotton, where necessary, up to the 15th September, after which date all stalks and debris must be immediately destroyed so as to give a close period in which no harbourage for pests will be possible.

Peanut Board.

By Order in Council, peanuts harvested from areas of half an acre and upwards within Queensland, during the season 1923-1924, have been declared to be a commodity under and for the purposes of the Primary Products Pools Acts. A Board has been constituted to deal with such commodity, the Board to consist of four members, one to represent the Council of Agriculture, two elected by growers in the Petty Sessions Districts of Wienholt and Nanango, and one elected by growers in other parts of the State. Members will hold office on the Board for twelve months from the date of election. Persons eligible to vote at any referendum or election in connection with the Board shall be persons who have harvested peanuts from areas of half an acre and upwards during the season 1923-24—*i.e.*, between the 1st July, 1923, and the 30th June, 1924.

Wheat Pool Act—Election of Board.

As a result of the extension of the provisions of the Wheat Pool Act, in order that they will apply to wheat of the 1924-25 season, a Regulation has been issued providing for the election of the Board to deal with the crop. Nominations for election as representatives of wheatgrowers on the Board will be received by the Under Secretary, Department of Agriculture and Stock, until noon on the 4th October, 1924. Five representatives are to be elected by growers who have furnished returns of wheat for the 1923-24 season, and also those to whom seed has been supplied by the State Wheat Board for this year's planting, and other *bonâ fide* growers of 1924-25 wheat who may make application for a voting-paper. The members elected will hold office for one year. One person is required to be elected in respect of each of the five districts, and each nomination is to be signed by at least ten growers residing in the district for which the person nominated desires to be elected. No person shall nominate for more than one district, and if more than one nomination is received in respect of one district, a postal ballot will be taken.

Banana Weevil Borer.

A Proclamation has been issued notifying that the removal of any banana plants (excepting the fruit thereof) affected with Banana Weevil Borer, from any nursery, orchard, or other place, is, from the 23rd August, 1924, absolutely prohibited, and that from that date the removal of any banana plant (excepting the fruit thereof) not affected with Banana Weevil Borer, from any nursery, &c., in which the said disease is present, is permitted only on the following conditions:—

"That all ground within a distance of three yards from the place where the plant to be removed is, or has been growing, is and has been kept in a state of thorough cultivation for at least twelve months prior to the digging of the plants.

"Any plant, when dug, is to be at once effectively trimmed by having all roots and trash removed, and the corms pared, and shall then be immediately removed from the place where grown, in such a manner as to prevent its coming in contact with the soil, and then forwarded direct to its destination or stored on a framework raised at least 2 ft. above the ground not less than 200 yards away from the nearest banana plant.

"Any banana plant removed under the conditions prescribed shall, during its removal, have attached to it or to the package or crate wherein it is contained, a certificate to the effect that it complies with the conditions set out in this Proclamation."

Proposed Milk Pool.

Following are the nominations for the Board of Management for the proposed Milk Pool:—James Aitcheson, Riverview; Robert Ellis Clay, Samson Vale; William John Hawkins, Bald Hills; Archibald William Johnston, Thagoona; William Richer Moon, Brookfield; Frederick Agustus Tulloch, Veresdale; Joseph Patrick Walsh, Rosewood; and L. H. Paten, Calvert.

Registration of Cotton Growers.

Regulations have been issued under the Cotton Industry Act which provide for the registration of all growers of cotton. A form of application as a cotton-grower is being prepared, and copies of this will be sent to all cotton-growers, who are expected to complete the form and return it to the Department of Agriculture and Stock before the 30th of November next. It will probably be some weeks before a supply of application forms will be available for distribution.

"Crown Gall" or "Hairy Root."

The disease affecting trees and plants and known as "Crown Gall" or "Hairy Root" has been proclaimed to be a disease within the meaning of the Diseases in Plants Act, and the removal of any fruit-tree or plant affected with this disease, from any nursery, orchard, or garden in Queensland to any other place in Queensland is prohibited. The introduction into Queensland of any fruit-tree or plant so affected, or grown in any place where this disease is or is suspected to be present, is also prohibited.

Wheat Pool Referendum.

The Minister for Agriculture (Hon. W. N. Gillies) announces that it has been decided to hold a referendum as to whether the Wheat Pool should be continued after the completion of the coming harvest. Accordingly, referendum papers will be sent out to every wheatgrower on the 18th September, asking him whether he is in favour of a continuation of the Wheat Pool and, if so, whether for three, two, or one years. The referendum papers will be returnable to the Under Secretary, Department of Agriculture and Stock, Brisbane, by the 11th October.

Staff Changes and Appointments.

The appointment of Mr. Chas. Cooke, of Upper Pilton, Clifton, as an Acting Inspector of Stock, has been cancelled.

Constable H. Brady, of Cambooya, has been appointed to the position of Inspector of Slaughter-houses.

Constable L. A. Cooke, of Wondai, has been appointed an Inspector of Slaughter-houses.

Mr. T. D. Cullen has been appointed Cane Tester at Inkerman Mill, *vice* Mr. H. B. Staples, deceased.

Mr. E. F. Duffy, formerly Inspector, Diseases in Plants Act, has been appointed Assistant Instructor in Fruit Culture, Department of Agriculture and Stock.

Mr. Mark Harrison, of Toowoomba, has been appointed Chairman of the State Wheat Board in succession to Mr. F. J. Morgan who has resumed duty with his bank as Brisbane manager. Mr. Harrison will hold office from the 1st August, 1924, to the 1st December, 1925, inclusive.

Constables J. A. Holley and N. H. E. Lawley, of Mungallala and Gilbert River respectively, have been appointed Inspectors of Slaughter-houses.

Mr. C. G. Holloway, of Glass House Mountains, has been appointed an Honorary Inspector under the Diseases in Plants Act.

Mr. Chas. Golden, The Canal, Yeulba, has been appointed an Honorary Acting Inspector of Stock.

Mr. J. P. C. Toft, Clerk, Lands Office, Bundaberg, has been seconded for duty to the State Advances Corporation as Acting Inspector, Advances to Settlers Branch, for a period of four months.

Mr. Frank H. Taylor, of Collaroy, New South Wales, has been appointed Assistant Entomologist, Sugar Experiment Stations, Department of Agriculture and Stock.

Weeping of Frozen Beef.

The Australian National Research Council, in conjunction with the Institute of Science and Industry, the Victorian Agricultural Department, and the Melbourne University, has commenced work in connection with the "weeping" of frozen beef. Investigations in England indicated that the "weeping" occurred because constituents of the carcass froze at different temperatures, which produced a separation of those constituents. Experiments with small portions of meat which were frozen rapidly gave promise of success, and it is intended to follow up these experiments on a commercial scale.

Bananas in Western Queensland.

A fruit and vegetable grower at Wyandra in South-Western Queensland reports excellent returns from 800 banana plants of the variety known as the "American Stone." The plants were grown in rows 3 ft. 6 in. apart with 18 in. between the plants in the row. The ground was well worked and dressed with sheep manure. The returns of fruit actually sold were 2 tons 17 cwt. 3 qr. which, as will be noted from the space occupied by the plants, would give at the rate of very nearly 29 tons of fruit to the acre. It would be interesting to know if any Coastal grower has ever received a better result than this.

"Banana Rust," "Banana Scab," or "Banana Thrips."

An additional Regulation under the Diseases in Plants Act has been approved, which provides that the occupier or owner of any land, orchard, or place where bananas affected with the disease known as "Banana Rust," "Banana Scab," or "Banana Thrips" are growing shall dust every young bunch produced by such banana plants within three days after the bunch has made its appearance, with a mixture consisting of one part of finely ground pyrethrum roseum powder and two parts of finely sifted dry wood ash, or such other mixture as an inspector may direct. The removal of any banana plant, excepting only the fruit of same, from any nursery, orchard, or garden in which the disease is known to exist is prohibited, as from 2nd August, 1924.

A Mosquito Eating Fish.

A valuable discovery has been made which it is hoped will go a long way towards exterminating the mosquito pest. It is a natural enemy, a freshwater minnow known as the Top Minnow. In Hawaii it has been used with good effect for years. About twelve years ago the Fiji Superintendent of Agriculture introduced the tiny fish into Fiji for the purpose of minimising the mosquito pest. They were placed in some pools at the experimental farm and then apparently forgotten. They increased at a wonderful rate, and later were found to exist in millions. They do not like running water, preferring stagnant pools, creeks, water-holes, and such places. There they breed and feed upon the larvæ of the mosquito. They will probably be distributed throughout the various islands, including the Solomons and New Hebrides, where by their means the fevers and malaria so prevalent should be reduced. The lively little minnow was first imported into Hawaii from the West Indies, where its activities are valued.

Eucalyptus for the African Veldt.

Many years ago South Africans came to Australia and took back with them seeds of the wattle tree that yields a valuable bark so much sought by tanners. Within a few years South Africa planted out many thousands of acres of country with wattle. With cheap black labour she was able in time to supply the best part of the world's needs of wattle bark for tanning purposes, and to-day the Union has practically a monopoly of this industry.

A significant note is sounded in a report from the New England district of New South Wales, which is to the effect that Mr. C. C. Robertson, of the South African Forestry Department, who came to Australia to acquire a knowledge of Australian hardwoods, has spent ten days being shown around the northern forestry district. The report states that he was greatly impressed with the Glen Elgin forests and the work of re-afforestation now being carried out in the State forest on the Styx River, below Armidale, and elsewhere. At Inverell he is said to have taken special note of stringy bark and blackbutts. It is understood that the South African visitor is inquiring into the possibilities of planting large tracts of the high veldt in Africa with Australian eucalypts. It was noticed that he took particular interest in peppermints, from which eucalyptus oil is largely extracted.

A 5,000-guinea Ram.

Wanganella Station has established what is said to be the world's record by obtaining 5,000 guineas for a merino stud ram, aged five years, the sire of the ram for which 3,050 guineas was obtained at the recent Sydney sales. The record price was paid by Mr. Roy McCaughey, of Coonong. The ram was taken by car from Wanganella to Coonong on 5th August.

Standardisation.

Owing to the active operations of the Australian Commonwealth Engineering Standards Association, standardisation in industry is being carried out with success in Australia. The progress of the association will, however, be more rapid when the whole-hearted support of manufacturers and the public is given to the movement.

There are many misconceptions of the meaning of standardisation in industry. Much has been said and written about the dangers of over-standardisation. Too many people believe that, having once standardised on some method or equipment, they have definitely standardised for all time to come, and that later, when something newer and better makes its appearance, it is impossible to change. Nothing is further from the truth than the above, provided the work of the Standards Association is carried out on the definite approved lines which have been formed by the knowledge obtained from countries which have had Standards Associations in existence for some time. The principal of these are:—Great Britain, America, and Germany. Standardisation in Germany has, perhaps, reached a higher state of efficiency than any other country in the world, the standardisation of industrial productions having been one of the important factors in enabling Germany to maintain its industrial machines intact in face of the multitudinous obstacles now confronting that country. The following interesting example, obtained from a recent bulletin of the American Engineering Standards Committee, of the efficiency of national standardisation as it has been developed in Germany is, in itself, sufficient proof of the value of standardisation. A rush order had been placed with German manufacturers for the delivery of 200 locomotives to Russia. The production of different parts was allotted to seventeen various manufacturers, to be produced strictly upon the plan of interchangeable parts, no one manufacturer making a complete locomotive. The inspectors made a striking test of the feasibility and accuracy of the plan by ordering a complete engine to be assembled, using parts chosen at random from those furnished by the seventeen manufacturers. It proved to be ready for service immediately after assembly without the necessity of any taking down or adjustment of the components. Standardisation in engineering has now become a recognised profession in Germany, and an interesting development of the last few years is the appearance of consulting engineering firms specialising in standardisation work. There are now five such firms in that country.

Wheat Crop Prospects.

The recent rains have practically assured the success of the main wheat crop on the Downs and in the Maranoa. Generally the wheat on the Downs is not quite as forward as is usual at this time of the year. A combination of circumstances seems to have brought this about: The present large maize crop following last year's lean wheat season; light winter rains; the heavy frost on 5th August, which, on account of the mild season, did a good deal of damage; and the custom, which is gradually growing up, of extending the planting season well into August beyond the safe normal period for the development of the wheat plant.

In the Maranoa, as observed by the Director of Agriculture (Mr. H. C. Quodling) in the course of a recent tour through the wheat areas, the rain came in the nick of time. Some of the crops in this district, similarly to those in other wheat-growing regions, had suffered in low-lying places from the early August frost, but has since made an excellent recovery.

At the Roma State Farm, where many very valuable wheats have been produced, a proportion of the crops, particularly a few specially early kinds, were well out in ear and showing well-filled grain, which should be ripe in the first week of next month. From a wheat-breeding standpoint the recent heavy and somewhat unusual August rains will admit of valuable data and special observations being made regarding the behaviour of a number of new wheats, particularly in respect to rust-resistance. This quality is of more than ordinary significance in evolving varieties to meet the rather exacting conditions encountered at times in Queensland. Rust-liable wheats must obviously be eliminated, otherwise the wheat-growers' risk becomes too great.

The maize crop on the Downs was certainly one of the best in the history of farming in this section of the State. Many crops yielded 60 bushels of good-quality grain to the acre. Mr. Quodling witnessed a trial of the Eclipse Maize Reaper Thresher, invented and patented by Mr. George Iland, of Toowoomba, and

manufactured in that progressive town. The machine worked perfectly in a heavy yielding crop, and in his opinion this modern invention goes a long way towards reducing the cost of production of maize to a minimum. Tests recently carried out confirm this, as after taking all overhead charges into account the actual cost of harvesting worked out at 2½d. per bushel. Another factor of importance to the farmer (and not allowed for in this harvesting estimate) was the cutting up of the maize stalks by the machine into short lengths while it was at work, thus admitting of the ploughing up of the land simultaneously with the harvesting of the maize crop. As a matter of fact, a field of well-established wheat was observed which had been put as a following crop after a light preparation of the soil.

Council of Agriculture—Standing Committees.

Standing Committees of the Council of Agriculture have been formed as under:—

Administrative:—Messrs. E. Graham, T. C. Hayes, F. M. Ruskin, W. A. Fielding, and G. E. McDonald.

Dairy:—Messrs. G. Burton (chairman), J. McRobert, J. Hardcastle, R. J. Webster, J. T. Tatnell, C. Bateman, and R. Graham.

Fruit.—Messrs. F. M. Ruskin (chairman), T. McEwan, J. S. Mehan, C. Bateman, and W. A. Fielding.

General Agriculture:—Messrs. T. C. Hayes (chairman), H. C. Quodling, E. A. Thomas, T. Brewer, and L. Dascombe.

Sugar:—Messrs. H. T. Easterby (chairman), W. B. Biggs, W. A. Fielding, J. M. Mulherin, and B. Courtice.

Cotton:—Messrs. G. E. McDonald (chairman), R. J. Webster, J. McRobert, J. Hardcastle, and T. C. Hayes.

Answer to Correspondents.

Sawdust as a Material for Producing Smoke Clouds.

E.G.C. (Severnlea)—

The Agricultural Chemist, Mr. J. C. Brünnich, advises that sawdust would be quite unsuitable by itself for producing smoke. It would have to be mixed with green wood, leaves, and possibly tar or asphalt to make a dense smoke. In experiments made last year on a cotton crop at Whinstanes for the purpose of testing the efficacy of a smoke screen in combating insect infestation coal tar, a gasworks by-product, was used and dense smoke clouds were produced.

The Care of Goats.

W. D. (Yalamuna)—

The inflammation or enteritis disclosed by the post-mortems of the kids is apparently due to unsuitable feeding. Probably there are other contributory causes of the mortality. Goats require shelter, particularly at night. The shelter should be built off the ground. All that is required is a rough platform about 3 ft. high floored with palings or slats spaced about half an inch apart to allow of droppings falling through to the ground. The platform should be roofed and walled, any rough bush material which would readily suggest itself to you would do. A milking bail should be placed in a corner of the shelter. It is not advisable to secure a goat by the horns when milking her. A bench about 2 ft. high and 1 ft. wide should be built at the entrance of the shelter, and when the kids are born they should be placed in the shed. When the nanny leaves the shed the kids in attempting to follow her will run under the bench, and, consequently, remain behind in the shed. When the kids are old enough to follow their mother they will be able to jump upon the bench at the entrance of the shelter and run with their dam. If the kids can jump upon the bench they are strong enough to follow their dam in the paddock. The nanny should not be milked for some time after kidding—say a fortnight—as the kids require all her milk, especially if she is not hand fed. The sickness among the kids may be due to germ infection. Building a camp for them off the ground would, in that case, give you a better chance of rearing them. The buck should also be a vigorous animal, and should not be allowed to run with too many does. Twenty does to one buck is considered a fair proportion, especially if the buck has to fend for himself.

Farm and Garden Notes for October.

FIELD.—With the advent of warmer weather and the consequent increase in the soil temperature, weeds will make great headway if not checked; therefore our advice for last month holds good with even greater force for the coming month. Earth up any crops which may require it, and keep the soil loose among them. Sow maize, cowpeas, sorghums, millet, panicums, pumpkins, melons, cucumbers, marrows. Plant sweet potatoes, yams, peanuts, arrowroot, tumeric, chicory and ginger. Coffee plants may be planted out. There are voluminous articles in previous journals giving full instructions how to manage coffee plants, from preparing the ground to harvesting the crop, to which our readers are referred.

KITCHEN GARDEN.—Our notes for this month will not vary much from those for September. Sowings may be made of most vegetables. We would not, however, advise the sowing of cauliflowers, as the hot season fast approaching will have a bad effect on their flowering. French beans, including butter beans, may be sown in all parts of the State. Lima and Madagascar beans should also be sown. Sow the dwarf Lima beans in rows 3 ft. apart with 18 in. between the plants. The kitchen garden should be deeply dug, and the soil reduced to a fine tilth. Give the plants plenty of room, both in sowing and transplanting, otherwise the plants will be drawn and worthless. Thin out melon and cucumber plants. Spraying for fungoid diseases should be attended to, particularly all members of the *Cucurbitaceæ* and *Solanum* families, of which melons and tomatoes are representative examples. Give plenty of water and mulch tomatoes planted out last month. Asparagus beds will require plentiful watering and a good top-dressing of short manure. See our instructions in "Market Gardening," obtainable on application to the Under Secretary, Department of Agriculture and Stock. Rosella seeds may be sown this month. No farm should be without rosellas. They are easily grown, they bear heavily, they make an excellent preserve, and are infinitely preferable to the mulberry for puddings. The bark supplies a splendid tough fibre for tying up plants. The fruit also makes a delicious wine.

FLOWER GARDEN.—The flower garden will now be showing the result of the care bestowed upon it during the past two months. The principal work to be done this month is the raking and stirring of the beds, staking, shading, and watering. Annuals may be sown as directed for last month. Plant tuberose, crinum, ismene, amaryllis, pancratium, hermocallis, hippeastrum, dahlias, &c. Water seedlings well after planting, and shade for a few days. Roses should now be in full bloom. Keep free from aphis, and cut off all spent flowers. Get the lawn-mower out and keep the grass down. Hoe the borders well, and trim the grass edges.

Orchard Notes for October.

THE COASTAL DISTRICTS.

October is frequently a dry month over the greater part of Queensland, consequently the advice that has been given in the notes for August and September regarding the necessity of thorough cultivation to retain moisture is again emphasised, as, unless there is an adequate supply of moisture in the soil to meet the trees' requirements, the coming season's crop will be jeopardised, as the young fruit will fail to set.

Thorough cultivation of all orchards, vineyards, and plantations is therefore imperative if the weather is dry, as the soil must be kept in a state of perfect tilth, and no weeds of any kind must be allowed to grow, as they only act as pumps

to draw out the moisture from the soil that is required by the trees or fruit-yielding plants. Should the trees show the slightest sign of the want of moisture, they should be given a thorough irrigation if there is any available means of doing so, as it is unwise to allow any fruit trees to suffer for want of water if there is a possibility of their being supplied with same. Intermittent growth, resulting from the tree or plant being well supplied with moisture at one time and starved at another, results in serious damage, as the vitality is lessened and the tree or plant is not so well able to ward off disease. A strong, healthy, vigorous tree is frequently able to resist disease, whereas when it has become debilitated through neglect, lack of moisture or plant food, it becomes an easy prey to many pests. If an irrigation is given, see that it is a good one and that the ground is soaked; a mere surface watering is often more or less injurious, as it is apt to encourage a false growth which will not last, and also to bring the feeding roots to the surface, where they are not required, as they only die out with a dry spell and are in the way of cultivation. Irrigation should always be followed by cultivation, so as to prevent surface evaporation and thus retain the moisture in the soil.

All newly planted trees should be carefully attended to, and if they show the slightest sign of scale insects or other pests they should receive attention at once. All growth not necessary to form the future tree should be removed, such as any growths on the main stem or main branches that are not required, as if this is done now it will not only save work later on, but will tend to throw the whole strength of the tree into the production of those limbs that will form the permanent framework of the tree. In older trees all water sprouts or other similar unnecessary growths should be removed.

Keep a good lookout for scales hatching out, and treat them before they have become firmly established and are coated with their protective covering as they are very easily killed in their early stages, and consequently much weaker sprays can be used. The best remedies to use for young scales hatching out are those that kill the insects by coming in contact with them, such as miscible oils, which can be applied at a strength of 1 part of oil in 40 parts of spraying material and will do more good than a winter spray of double the strength. In the use of miscible oils or kerosene emulsion, always follow the directions given for the use of these spraying materials, and never apply them to evergreen trees when they are showing signs of distress resulting from a lack of moisture in the soil, as they are then likely to injure the tree, whereas if the tree is in vigorous growth they will do no harm whatever.

All leaf-eating insects should be kept in check by the use of an arsenate of lead spray, taking care to apply it as soon as the damage appears, and not to wait till the crop is ruined. Crops, such as all kinds of cucurbitious plants, tomatoes, and potatoes are often seriously injured by these insects, and the loss occasioned thereby can be prevented by spraying in time. In the case of tomatoes and potatoes, a combined spray of Bordeaux or Burgundy mixture and arsenate of lead should be used, as it will serve the dual purpose of destroying leaf-eating insects and of protecting the plants from the attack of Irish blight.

Grape vines require careful attention, and, if not already sprayed with Bordeaux mixture, no time should be lost in applying this material, as the only reliable method of checking such diseases as anthracnose or black spot and downy mildew is to protect the wood and foliage from the attack of these diseases by providing a spray covering that will destroy any spores that may come in contact with them. The planting of bananas and pineapples can be continued during this month. See that the land is properly prepared and that good healthy suckers only are used. Keep the plantations well worked, and allow no weed growth. Keep a very careful lookout for fruit flies; destroy every mature insect you can, and gather and destroy every fallen fruit. If this is done systematically by all growers early in the season, the subsequent crops of flies will be very materially decreased. See that all fruit sent to market during the month is carefully handled, properly graded, and well packed—not topped, but that the sample right through the case or lot is the same as that of the exposed surface.

GRANITE BELT, SOUTHERN AND CENTRAL TABLELANDS

Much of the matter contained under the heading of "The Coast Districts" applies equally to these parts of the State, as on the spring treatment that the orchard and vineyard receives the succeeding crop of fruit is very largely dependent. All orchards and vineyards must be kept in a state of perfect tilth, and no weed growth of any kind should be allowed. In the Western districts, irrigation should be given whenever necessary, but growers should not depend on irrigation alone, but should combine it with the thorough cultivation of the land so as to form and keep a fine soil mulch that will prevent surface evaporation.

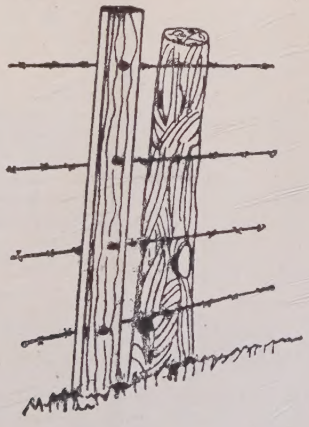
All newly planted trees should be carefully looked after and only permitted to grow the branches required to form the future tree. All others should be removed as soon as they make their appearance. If there is any sign of woolly aphis, peach aphis, or scale insects, or of any fungus diseases on the young trees, these diseases should be dealt with at once by the use of such remedies as black leaf forty, Bordeaux mixture, or a weak oil emulsion. In older trees, similar pests should be systematically fought, as if kept in check at the beginning of the season the crop of fruit will not suffer to any appreciable extent. Where brown rot has been present in previous years, two or more sprayings with Bordeaux mixture can be tried, as they will tend to check other fungus growths, but at the same time the sodium or potassium sulphide sprays are more effectual for this particular disease and should be used in preference when the fruit is nearly full grown. All pear, apple, and quince trees should be sprayed with arsenate of lead—first when the blossom is falling, and at intervals of about three weeks. Spraying for codlin moth is compulsory in the fruit district of Stanthorpe, and wherever pomaceous fruits are grown it must be attended to if this insect is to be kept in check.

In the warmer parts a careful check should be kept for any appearance of the fruit fly, and, should it be found, every effort should be made to trap the mature insect and to gather and destroy any affected fruit. If this is done, there is a good chance of saving the earlier ripening summer fruits, if not the bulk of the crop. Tomato and potato crops will require spraying with Bordeaux mixture, as also will grape vines. Keep a very strict watch on all grape vines, and, if they have not already been treated, don't delay a day in spraying if any sign of an oil spot, the first indication of downy mildew, appears on the top surface of the leaf. Spraying with Bordeaux mixture at once, and following the first spraying up with subsequent sprayings, if necessary, will save the crop, but if this is not done and the season is favourable for the development of the particular fungus causing this disease, growers can rest assurred that their grape crop won't take long to harvest.

Where new vineyards have been planted, spraying is also very necessary, as if this is not done the young leaves and growth are apt to be so badly affected that the plant dies.

SPACING BARBED WIRE.

If a spacing stick is used when erecting a barbed-wire fence a much neater-appearing and more satisfactory job will result. Besides, the spacing stick will be a great time-saver. A piece of 4 in. x 1 in., about 5 ft. long is a satisfactory size. Drive an eight penny nail through the board as far from one end as you wish the



bottom wire to be from the ground. Similarly drive nails for all the other wires. In using, the stick is set upright beside a post, the wires are slipped on to the nails—the points, not the heads—and the wires are held in place while the stapling is being done. By pressing a knee or thigh against the board the wire is held snugly against the post.—"Country Gentleman."

ASTRONOMICAL DATA FOR QUEENSLAND.

TIMES COMPUTED BY D. EGLINTON, F.R.A.S.

TIMES OF SUNRISE AND SUNSET.

AT WARWICK.

1924.	OCTOBER.		NOVEMBER.		DECEMBER.	
Date.	Rises.	Sets.	Rises.	Sets.	Rises.	Sets.
1	5·33	5·50	5·3	6·9	4·51	6·32
2	5·32	5·51	5·2	6·10	4·51	6·33
3	5·31	5·51	5·1	6·11	4·50	6·34
4	5·30	5·52	5·0	6·12	4·50	6·35
5	5·29	5·52	5·0	6·13	4·50	6·36
6	5·28	5·53	4·59	6·13	4·50	6·36
7	5·27	5·53	4·59	6·14	4·50	6·37
8	5·25	5·54	4·58	6·14	4·51	6·37
9	5·24	5·54	4·57	6·15	4·51	6·38
10	5·23	5·55	4·57	6·16	4·51	6·39
11	5·22	5·55	4·56	6·17	4·52	6·39
12	5·21	5·56	4·56	6·18	4·52	6·40
13	5·20	5·56	4·55	6·18	4·52	6·40
14	5·19	5·57	4·55	6·19	4·53	6·41
15	5·17	5·58	4·54	6·20	4·53	6·41
16	5·16	5·58	4·54	6·20	4·53	6·42
17	5·15	5·59	4·53	6·21	4·54	6·42
18	5·14	6·0	4·53	6·22	4·54	6·43
19	5·13	6·1	4·52	6·23	4·55	6·43
20	5·12	6·1	4·52	6·24	4·55	6·44
21	5·11	6·2	4·52	6·25	4·56	6·45
22	5·10	6·3	4·52	6·25	4·56	6·45
23	5·9	6·3	4·52	6·25	4·57	6·46
24	5·9	6·4	4·51	6·27	4·57	6·46
25	5·8	6·4	4·51	6·28	4·58	6·47
26	5·7	6·5	4·51	6·28	4·58	6·47
27	5·7	6·5	4·51	6·29	4·59	6·48
28	5·6	6·6	4·51	6·30	5·0	6·48
29	5·6	6·7	4·51	6·31	5·0	6·49
30	5·5	6·7	4·51	6·31	5·1	6·49
31	5·4	6·8	...	...	5·1	6·49

Phases of the Moon, Occultations, &c.

The times stated are for Queensland, New South Wales, Victoria, and Tasmania.

6 Oct.	☾	First Quarter	12 30 a.m.
13 „	○	Full Moon	6 21 a.m.
21 „	☽	Last Quarter	8 54 a.m.
28 „	●	New Moon	4 57 p.m.

Perigee, 3rd and 30th October { 3 6 p.m. / 12 12 a.m.

Apogee, 18th October .. .. 6 18 p.m.

On the 10th October, at 8·17 p.m., Uranus will be in conjunction with the moon about three times the moon's diameter below it. This should be observable in binoculars.

On 23rd October, at about 10 p.m., Regulus will be occulted by the moon at Thursday Island, but not at Cooktown or Cairns, where Regulus will appear just above the edge of the moon; further south the distance between Regulus and the moon will appear greater.

On the 26th October, at 1·0 p.m., Mercury will be in superior conjunction with the sun—that is, on the far side of its orbit beyond the sun, where it will be quite invisible. Venus will be a morning star, and Saturn, Jupiter, and Mars will be visible in the evenings during this month.

4 Nov.	☾	First Quarter	8 18 a.m.
11 „	○	Full Moon	10 0 p.m.
20 „	☽	Last Quarter	3 38 a.m.
27 „	●	New Moon	3 15 a.m.

Apogee, 15th November, 11·0 a.m.
Perigee, 27th November, 10·36 p.m.

Venus, still the most brilliant morning star, will be about five degrees west of Spica (the principal star of Vergo) on the 15th; Mars on that date will be apparently amongst the smaller stars of Aquarius, setting about half-past 1 in the morning. Jupiter will be apparently amongst the stars of Scorpio about 15 degrees to the north-east of Antares. Saturn will be visible only in the east, rising about an hour before the sun.

3 Dec.	☾	First Quarter	7 10 p.m.
11 „	○	Full Moon	5 3 p.m.
19 „	☽	Last Quarter	8 11 p.m.
26 „	●	New Moon	1 45 p.m.

Apogee, 12th December, 6·36 p.m.
Perigee, 26th December, 11·12 a.m.

Mercury will be at its greatest elongation east of the sun on the 10th, and will rise and set one hour and twenty-four minutes after the sun on the 15th, apparently amongst the stars of Sagittarius. Venus will still be the brilliant morning star, rising about 2 a.m. on the 15th, apparently among the stars of Libra; Mars, having apparently reached the constellation Pisces, will set soon after midnight on the 15th. Jupiter will not be so well situated for observation, and will be lost in the sun's rays towards the end of the month. Saturn, as a morning star, will rise about half an hour before Venus in the middle of this month.

For places west of Warwick and nearly in the same latitude, 28 degrees 12 minutes S., add 4 minutes for each degree of longitude. For example, at Inglewood, add 4 minutes to the times given above for Warwick; at Goondiwindi, add 8 minutes; at St. George, 14 minutes; at Cunnamulla, 25 minutes; at Thargomindah, 33 minutes; and at Oontoo, 43 minutes.

The moonlight nights for each month can best be ascertained by noticing the dates when the moon will be in the first quarter and when full. In the latter case the moon will rise somewhat about the time the sun sets, and the moonlight then extends all through the night; when at the first quarter the moon rises somewhere about six hours before the sun sets, and it is moonlight only till about midnight. After full moon it will be later each evening before it rises, and when in the last quarter it will not generally rise till after midnight.

It must be remembered that the times referred to are only roughly approximate, as the relative positions of the sun and moon vary considerably.

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